

No. 619,242.

Patented Feb. 7, 1899.

L. A. WESTON.  
AUTOMATIC FIRE SPRINKLER.

(Application filed Apr. 8, 1898.)

(No Model.)

Fig. 1.

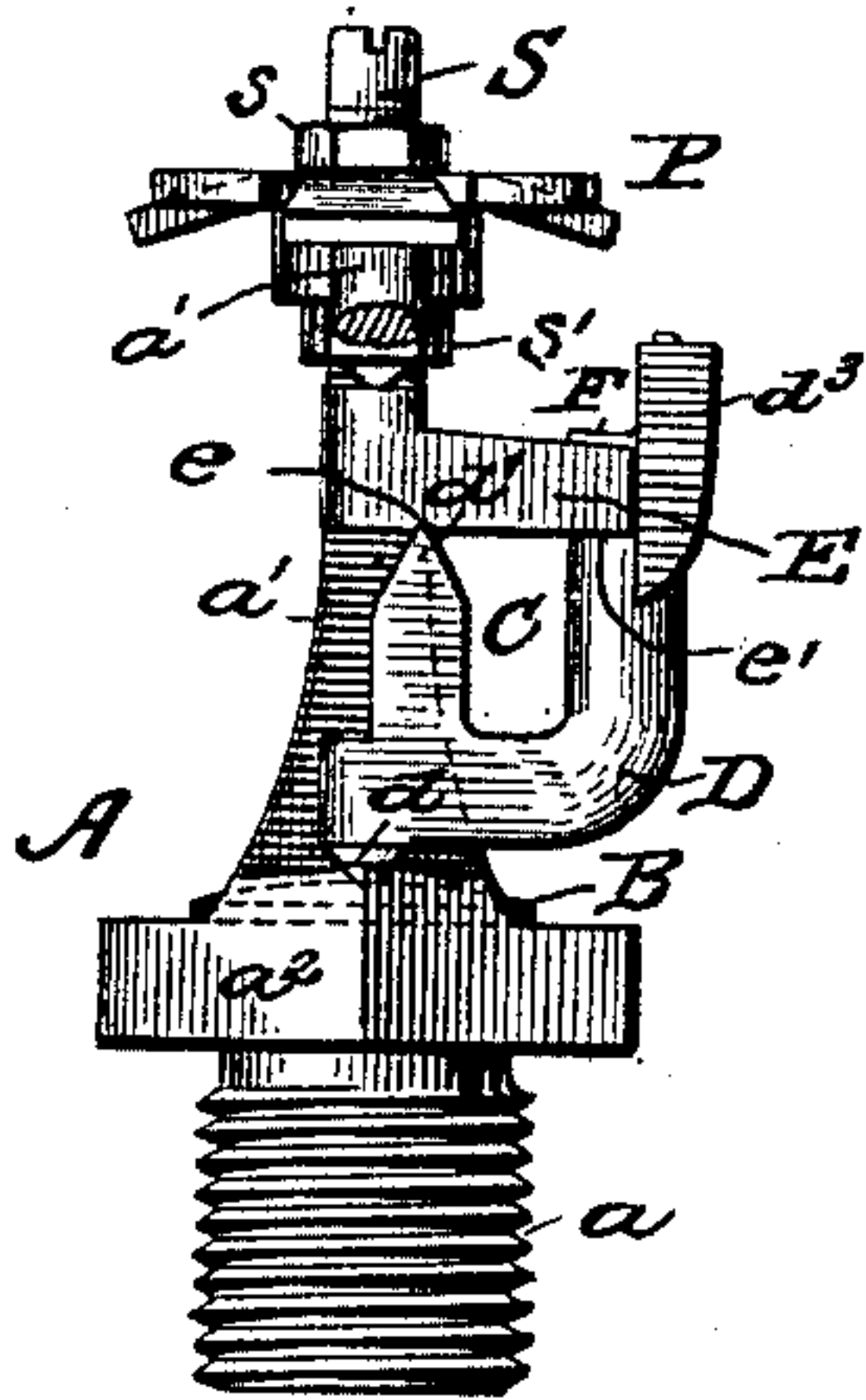


Fig. 2.

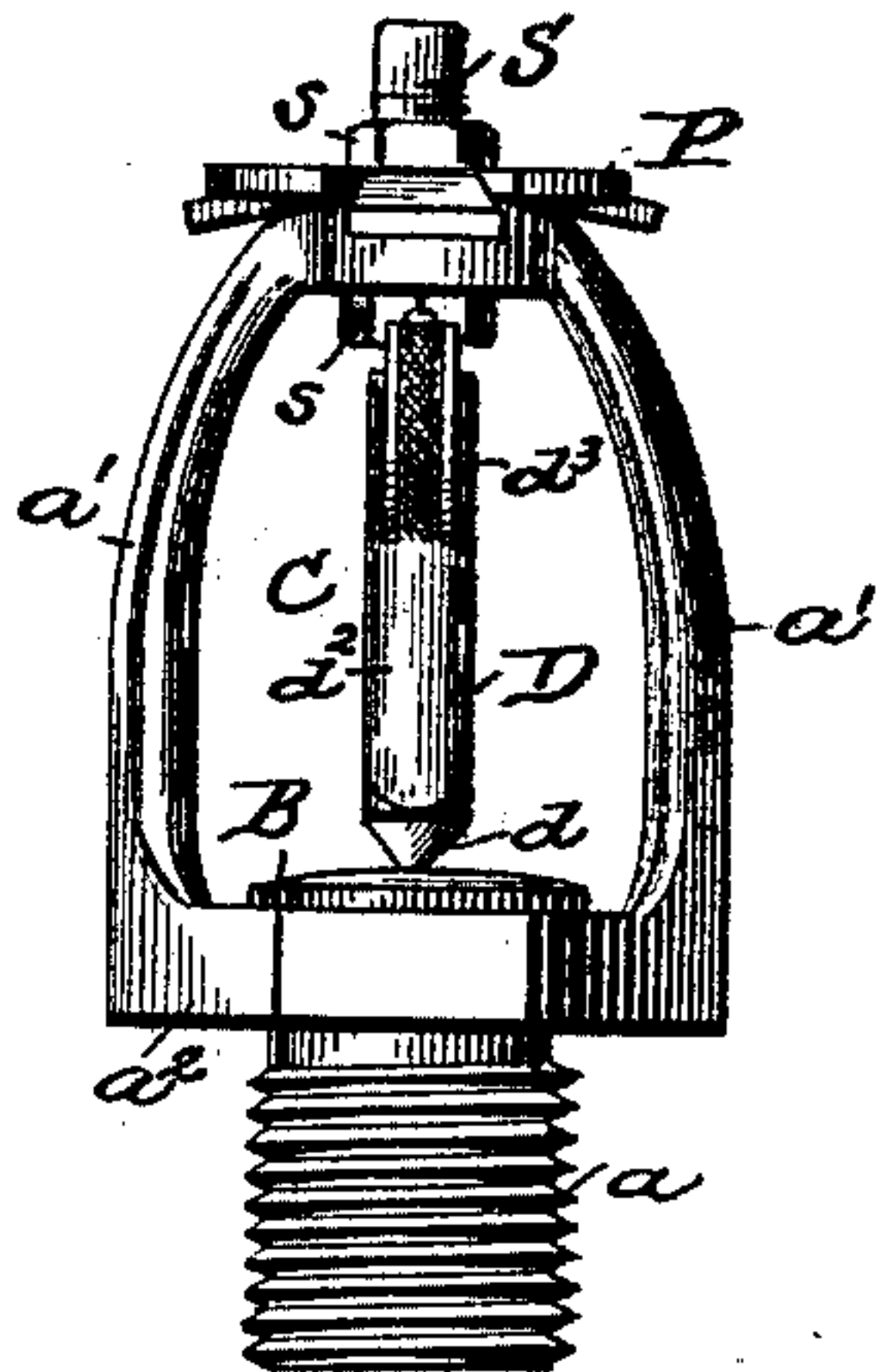


Fig. 3.

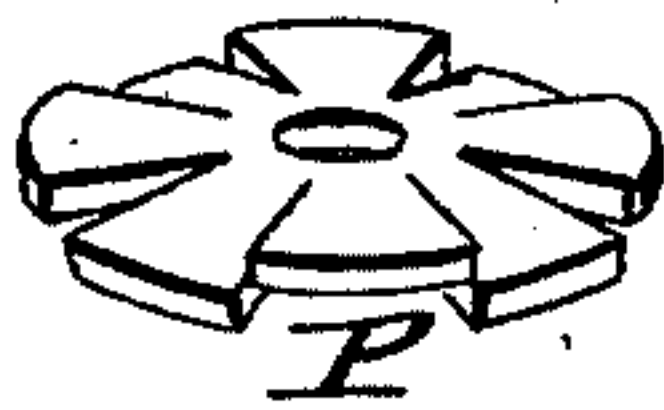


Fig. 4.

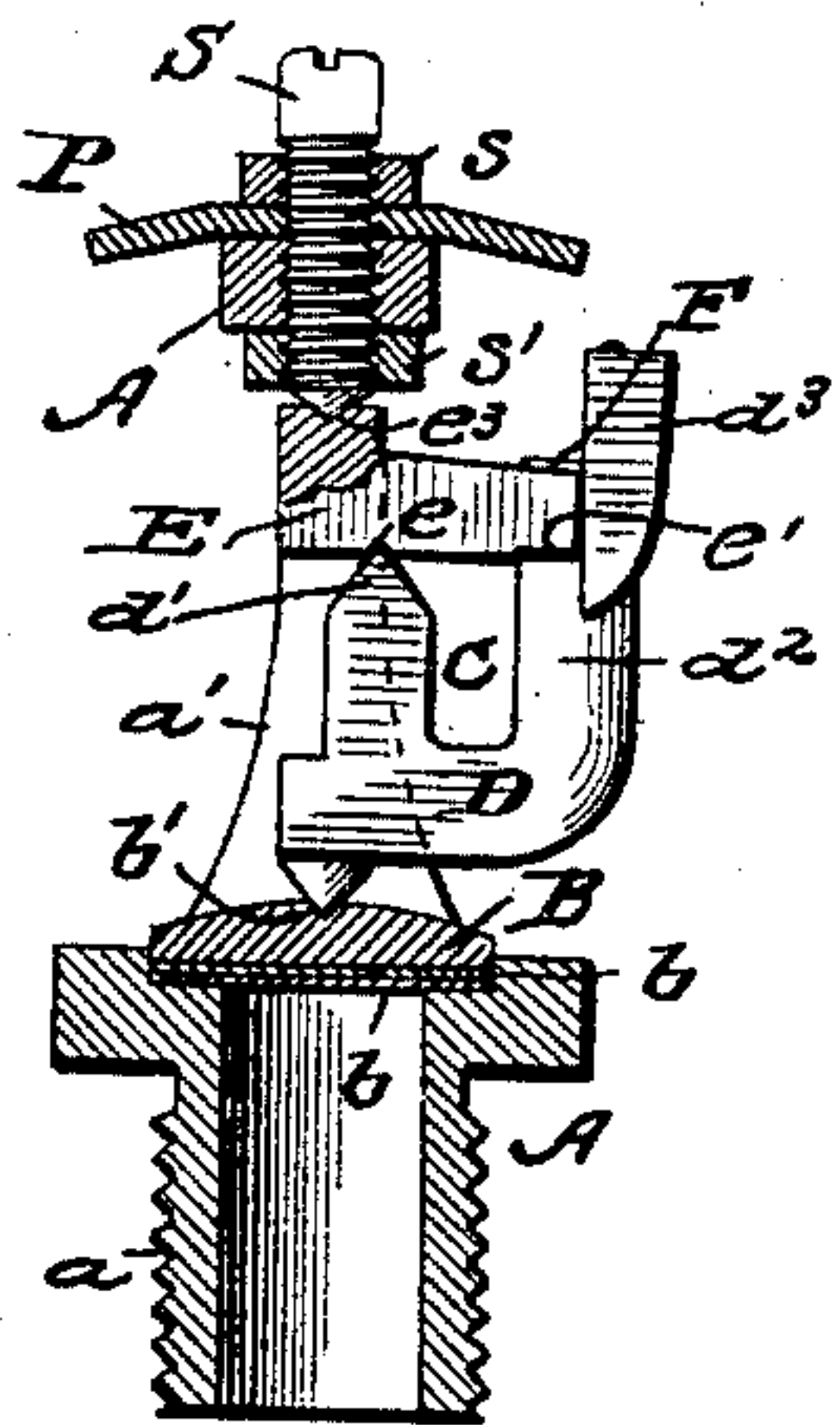


Fig. 5.

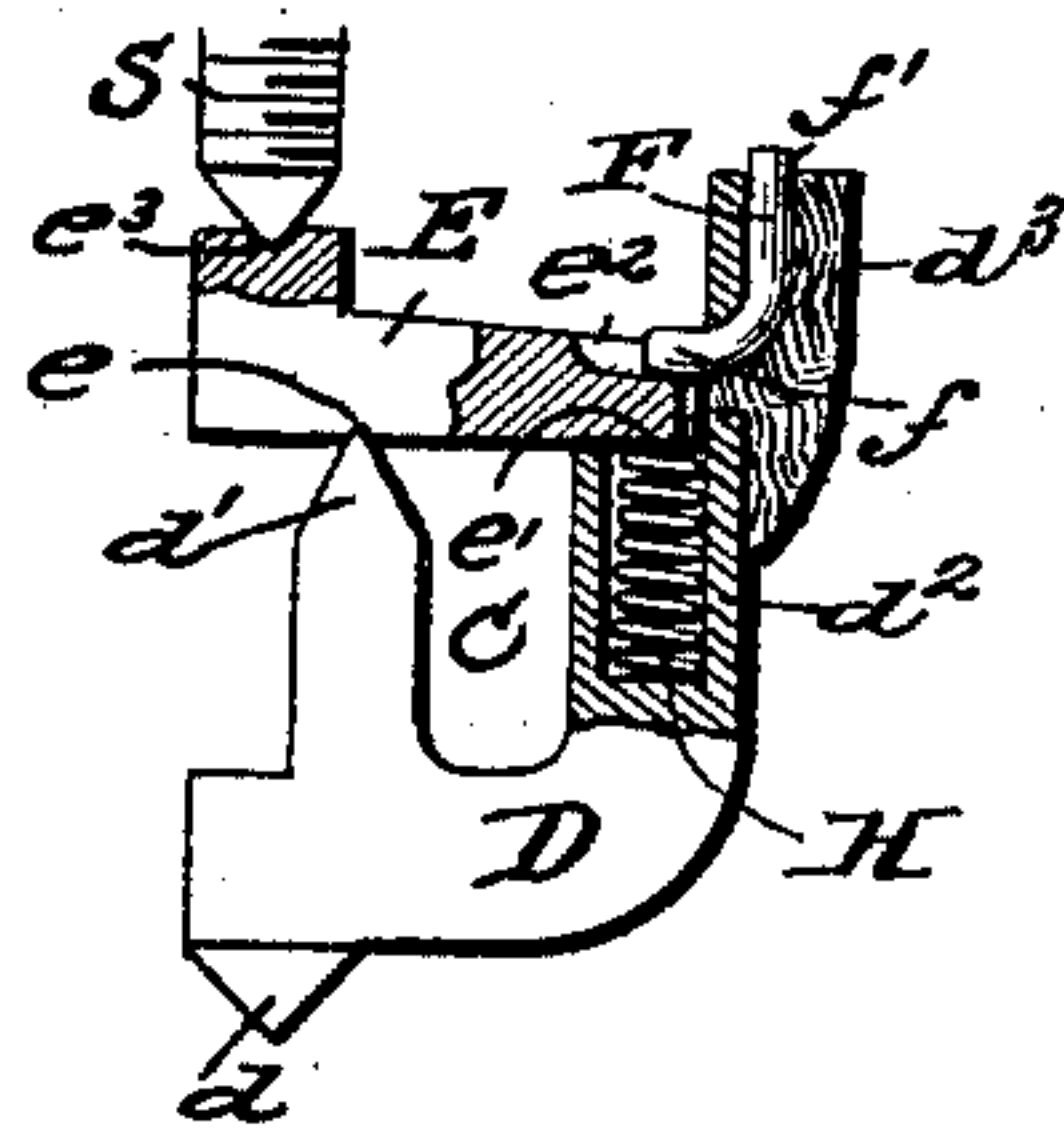


Fig. 6.

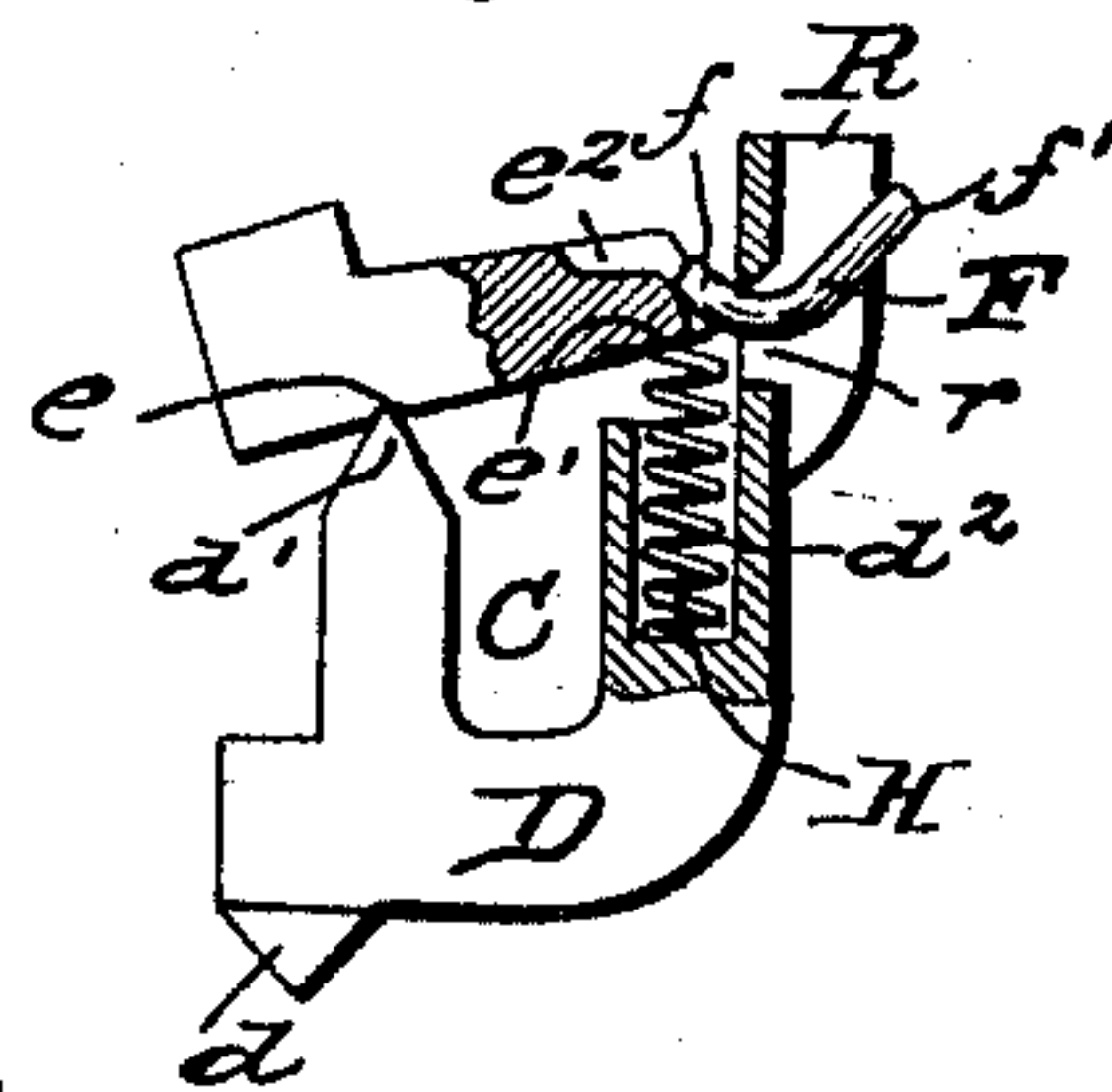
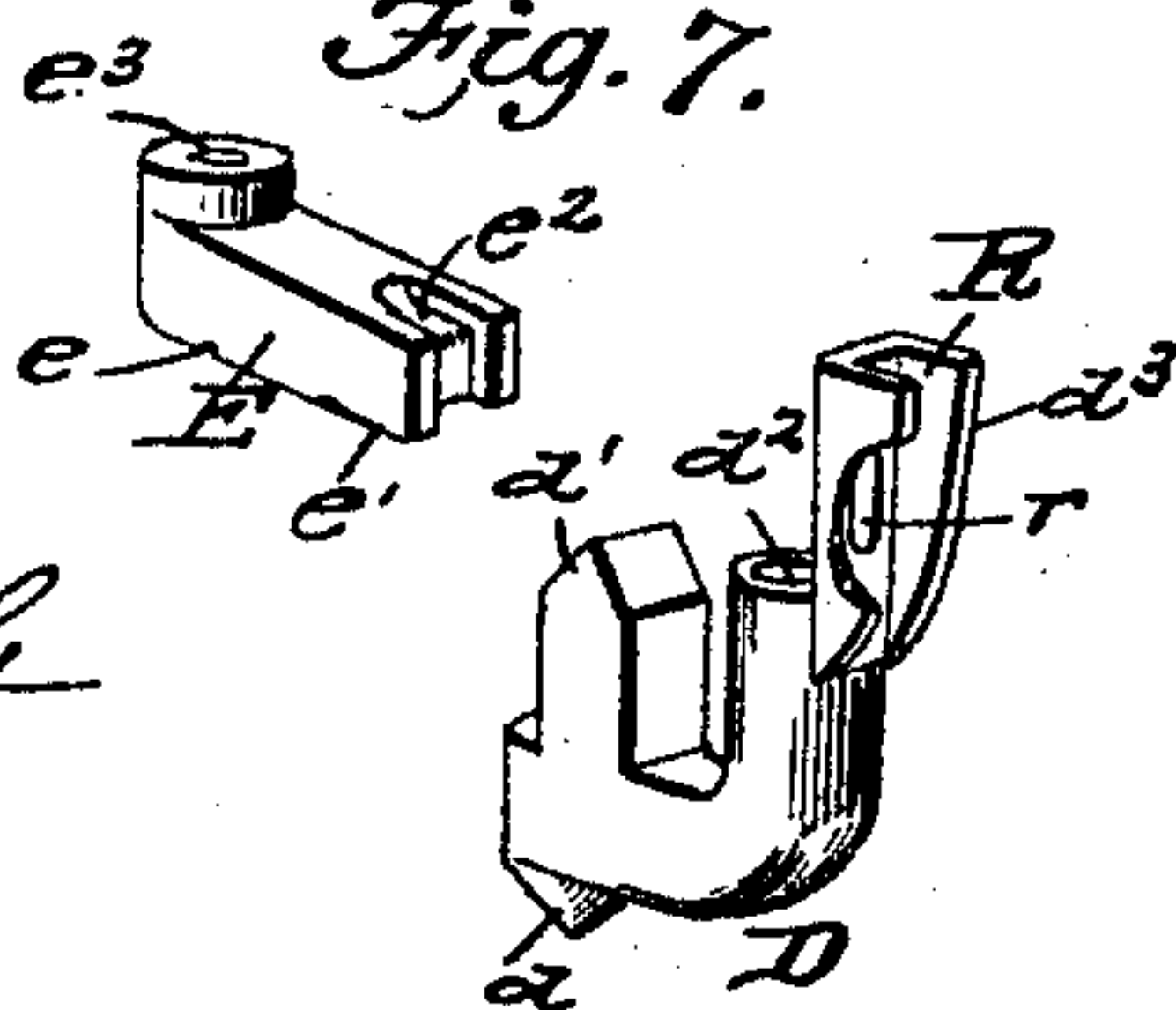


Fig. 7.



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# UNITED STATES PATENT OFFICE.

LEROY A. WESTON, OF ADAMS, MASSACHUSETTS.

## AUTOMATIC FIRE-SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 619,242, dated February 7, 1899.

Application filed April 8, 1898. Serial No. 676,874. (No model.)

*To all whom it may concern:*

Be it known that I, LEROY A. WESTON, of Adams, in the county of Berkshire and State of Massachusetts, have invented a new and useful Improvement in Automatic Fire-Sprinklers, of which the following is a specification.

This invention relates to that class of fire-extinguishers in which the valve for the supply-pipe is held to its seat by a support formed of two or more parts held together by solder or other metal that melts at a comparatively low temperature to unloose the parts and release the valve.

The object of the present invention is to provide a device of this character that will act effectively to hold the valve seated against the pressure of the water in the pipe so long as the joint between its parts remains unbroken no matter what amount of ordinary pressure is put on the valve, and yet at the same time readily break its joint to release the valve when the fusible metal is acted on by heat of a temperature high enough to endanger the adjacent woodwork or the like.

With this end in view my invention consists of certain constructions and arrangements of the parts, which I shall first describe and then point out the novel features in the accompanying claims.

In the accompanying drawings, Figure 1 is a sectional side elevation of my invention. Fig. 2 is a side elevation at right angles to Fig. 1. Fig. 3 is a detail view of a spreader used in connection with my device. Fig. 4 is a vertical section of the complete device. Fig. 5 illustrates the valve-support with parts in normal position. Fig. 6 is a similar view illustrating the inceptive movement of the parts, and Fig. 7 is a detail view of the valve-support with its parts separated one from the other.

The nozzle A is screw-threaded at  $a$  for attachment to a water-pipe and is formed with a yoke-frame  $a'$  for the valve-support. This frame has a polygonal base  $a^2$  to facilitate the application of a wrench, and the upper face thereof is grooved to form a seat in which are adapted to be held the valve B and washers  $b$   $b$ .

The valve-support C is composed of two main members D and E, arranged when in position in the frame  $a'$  one above the other.

The lower member D is of approximately J shape, having a conical bearing-point  $d$ , a fulcrum edge  $d'$ , a hollow arm  $d^2$ , and an extension  $d^3$  from said hollow arm, and the upper member E is provided with a slight groove  $e$  and flat bearing-surface  $e'$  on one face and with a recess  $e^2$  and bearing surface or point  $e^3$  on the opposite face, all for a purpose to be now described.

The valve-support C is placed in the frame, with the conical bearing-point  $d$  of the lower member D seated in an indentation  $b'$  in the valve and with the upper member E resting upon the fulcrum edge  $d'$  and upper surface of the hollow arm  $d^2$ . The upper bearing-surface  $e^3$  of the upper member is in contact with a screw S, adjustably held in the upper end of the yoke-frame, the said screw being held in adjusted position by lock-nuts  $s$  and  $s'$ . Now by reason of the pressure of the fluid in the pipe against the under side of the valve B pressure is exerted in a direct line between the bearing-points  $d$  and  $e^3$ , which would tend to tilt the upper member E and collapse the valve-support, and to hold the said valve-support together I employ the following devices:

A groove R is provided in the outer face of the extension  $d^3$  of the lower member D, and an opening  $r$  leads from said groove to the inner face of said extension directly above the mouth or upper surface of the hollow arm  $d^2$ . This opening is contiguous to the recess  $e^2$ . In this recess an L-shaped restraining-key F is designed to be located, with its short arm  $f$  in the recess  $e^2$  and its long arm  $f'$  in the groove R. A fusible metal is now run in the groove R and recess  $e^2$ , whereby to hold the said key in position. Now it will be seen that so long as the restraining-key F is in place the pressure brought to bear upon the bearing-points  $d$  and  $e^3$  can in no wise tilt the upper member E to the releasing of the valve, and even should the short arm  $f$  become loosened in the recess  $e^2$  the joint will not be broken, as the upper wall of the opening  $r$  acts as a fulcrum for the key, which latter cannot rock thereon so long as the long arm thereof adheres to the groove R.

I preferably employ a coil-spring H, which is inclosed within the hollow arm  $d^2$  of the lower member and bears against the lower face of the upper member, at the bearing-sur-



face  $e'$  thereof, so that no matter how little pressure is in the pipe to be exerted against the oppositely-disposed bearing-points  $d$  and  $e^3$  the upper member E will be tilted positively whenever the restraining-key is allowed to be tilted by the melting of the solder or the like.

It is to be noted that the spring H by being inclosed in the hollow arm  $d^2$  is rendered free from atmospheric influence, so that its tension is never varied.

To spread the water issuing through the nozzle. I provide a spreader P, fitted on the screw S and consisting of a circular piece of metal formed with a series of radial cuts forming wings, which latter are bent at various angles to the axis of the spreader.

It will be observed that I have provided an automatic fire-sprinkler which is very efficient and one which while positive in operation is very safe, as the valve-support will not break at the joints until the solder is melted and the restraining-key and upper member thereof tilted.

Owing to the fact that the spring H is inclosed in the hollow arm it is entirely protected from atmospheric changes.

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

1. In a valve-support for automatic fire-sprinklers, the combination of the separable members fulcrumed one upon the other, the lower member having an extension above the upper member, and a restraining-key held in said extension and having one end bearing upon the upper side of the upper member, as set forth.

2. In a valve-support for automatic fire-sprinklers, the combination of the lower member formed with a fulcrum edge and bearing-surface and an extension above said bearing-surface, an upper member mounted upon said fulcrum edge and bearing-surface, and a restraining-key held in said extension and engaging the upper side of said upper member directly above said bearing-surface, as set forth.

3. An automatic fire-sprinkler, provided with a valve, a support therefor formed with an upper and a lower member, the lower member being provided with an edge on which the upper member is fulcrumed, a bearing-surface for one end of said upper member, and an extension above said surface, the said extension being formed with a groove on its outer face and an opening leading therefrom to its inner face, the upper member being formed on its upper face with a recess against said opening, and an L-shaped restraining-key having its longer arm located in said groove and its short arm extending through said opening into the said recess of the upper member, being held in position by fusible metal, as set forth.

4. The combination with the frame, and the

valve therein, of the support for the valve, said support consisting of a lower member, an upper member fulcrumed thereupon so as to tilt when pressure is applied to the valve, the lower member having a hollow arm on which the end of the upper member rests, a restraining-key connecting the said members and by which the tilting is prevented, the said key being held in place by fusible metal, and a spring inclosed in said hollow arm and pressing against the end of said upper member thereabove to positively tilt the same, as and for the purpose set forth.

5. In a valve-support for fire-sprinklers, the combination of the upper and lower members separably connected together, the lower member having a fulcrum edge on which the upper member is mounted, a hollow arm supporting one end of said upper member, and an extension from said hollow arm and rising above the supported end of the upper member, a restraining-key mounted in said extension and engaging the upper side of said supported end to prevent tilting of the same, and a spring inclosed in said hollow arm and bearing against the opposite side of said supported end, as set forth.

6. In a valve-support for automatic fire-sprinklers the combination of the lower member, the upper member mounted thereon so as to tilt when pressure is applied to the valve, the lower member having an extension rising above the upper member and formed with a grooved rear face and an opening leading from said grooved face to its front face, and an L-shaped restraining-key having its longer member located in said groove and its shorter member inserted through said opening and engaging the said upper member to prevent its tilting, as set forth.

7. In a valve-support for automatic fire-sprinklers, the combination of the lower member formed with a fulcrum edge and a bearing-surface in horizontal alinement, and an opening above said bearing-surface, an upper member resting upon said fulcrum edge and bearing-surface, and a restraining-key inserted through said opening and engaging the said upper member to hold it in place, as set forth.

8. In a valve-support for automatic fire-sprinklers, the combination of the lower member formed with a fulcrum edge and a bearing-surface in horizontal alinement, and an opening above said bearing-surface, an upper member mounted on said fulcrum edge and having one end resting on said bearing-surface, the said end on its upper face being provided with a recess, and a restraining-key having a bent end inserted through the said opening and fitted in said recess, as set forth.

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Witnesses:

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