

(No Model.)

F. B. COMINS.
AUTOMATIC SPRINKLER.

No. 322,685.

Fig. 1. Patented July 21, 1885.

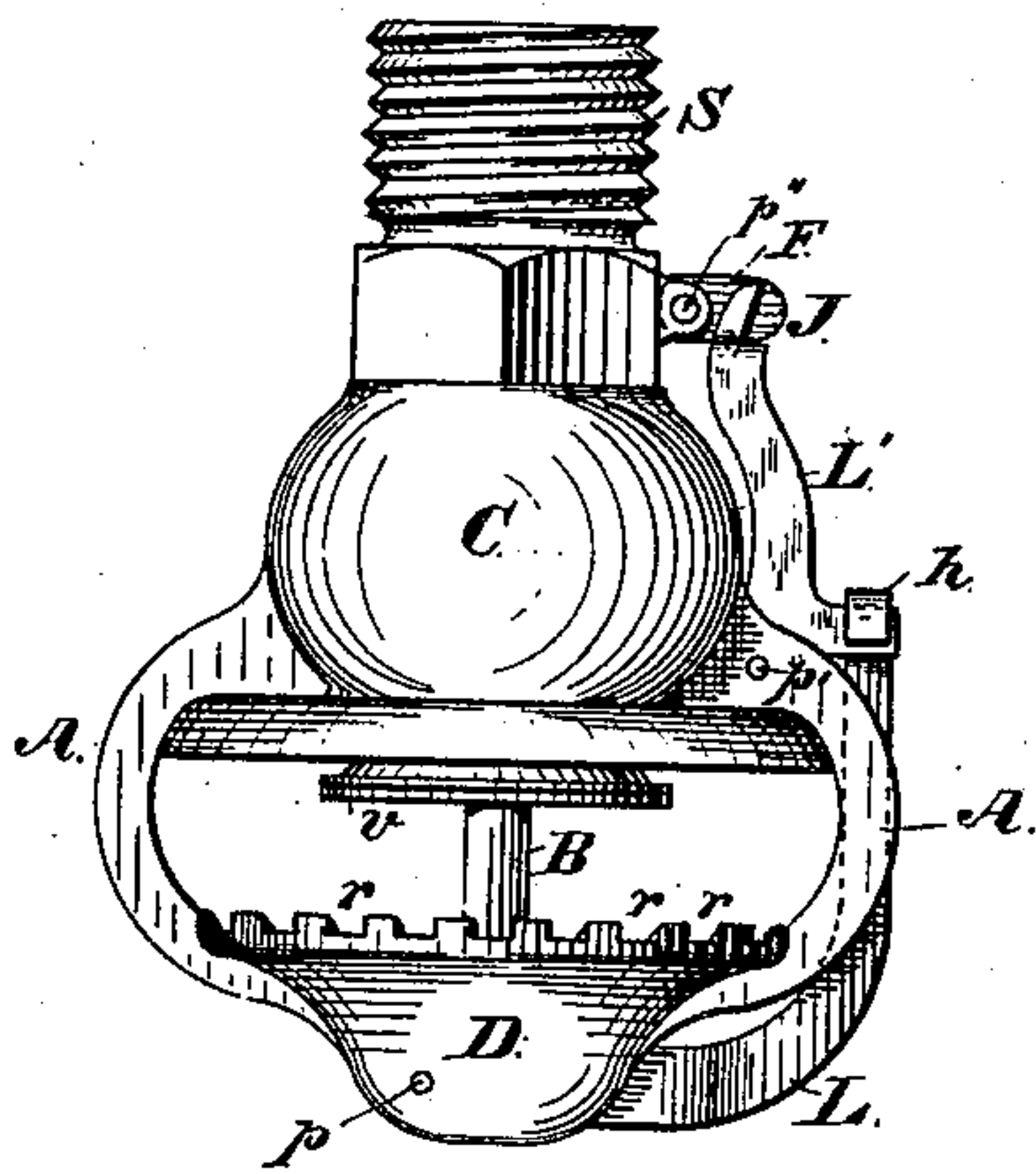


Fig. 2.

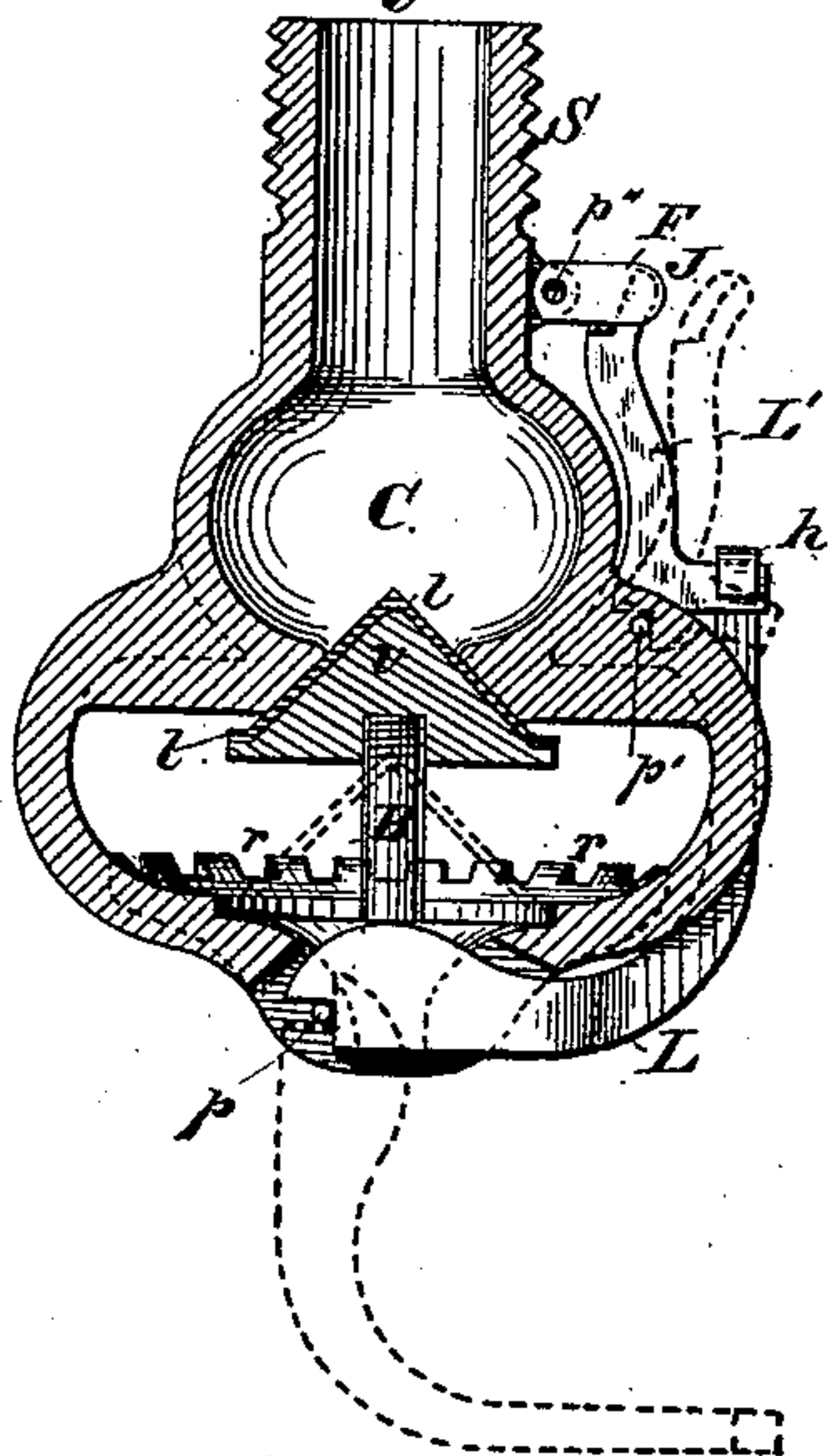


Fig. 4

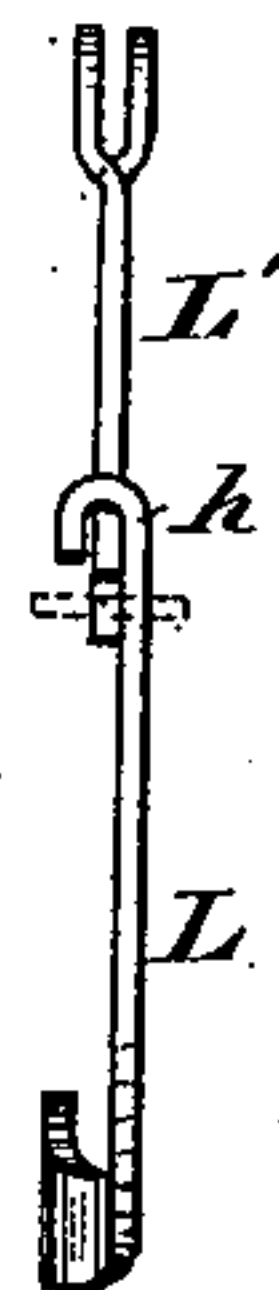
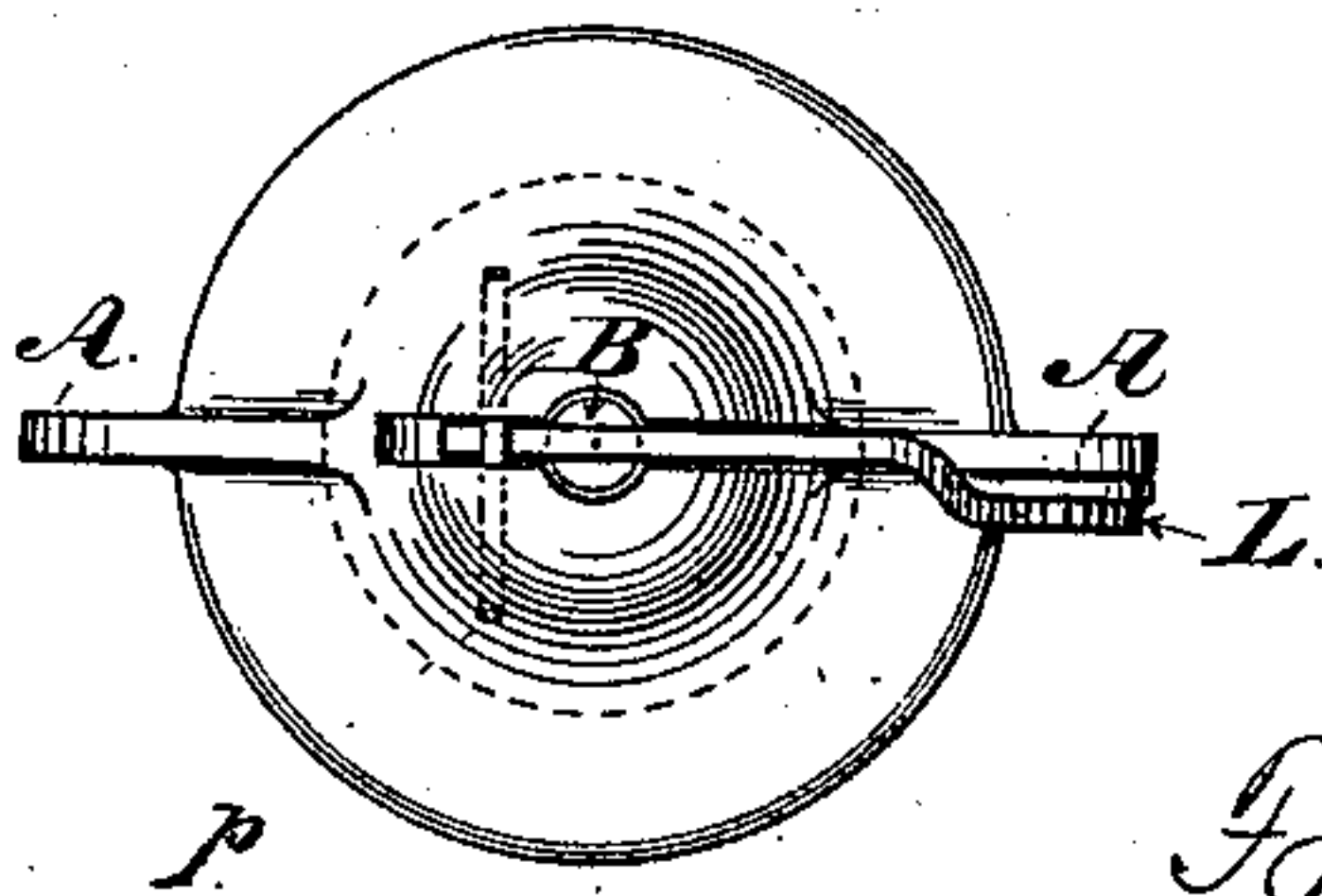


Fig. 3.



Witnesses:

Witnesses:
Henry Cichling
J. W. Merritt

Inventor

Frank B Conners
by H Hollenuth Atty

UNITED STATES PATENT OFFICE.

FRANK B. COMINS, OF NEW BEDFORD, MASSACHUSETTS.

AUTOMATIC SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 322,685, dated July 21, 1885.

Application filed September 17, 1884. (No model.)

To all whom it may concern:

Be it known that I, FRANK B. COMINS, a citizen of the United States, residing at New Bedford, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Extinguishing Fire, of which the following, together with the accompanying drawings, form a specification.

My invention relates to that class of apparatus for extinguishing fires known as "automatic sprinklers," and has for its object to produce a sensitive and reliable sprinkler of simple mechanical construction.

It consists in the construction and arrangement of parts as shown in the accompanying drawings, in which—

Figure 1 represents a side view of the sprinkler. Fig. 2 shows a central longitudinal section of the same. Fig. 3 shows a bottom plan view of the same. Fig. 4 shows a side view of the levers for holding the valve closed, and the arrangement of the fusible solder-joint.

The sprinkler consists of a composition or other suitable metal case, C, having a screw-threaded nipple, S, by means of which it is secured in an outlet of a suitable system of pipes supplying water, under pressure, to the chamber C. At the bottom of the chamber C is an outlet closed by a suitable conical valve, *v*. This valve is preferably covered with a lead cap, *l*, resting upon it, which secures a perfectly water-tight joint when the valve *v* is held to its seat formed in case C. Below the outlet in case C is a fixed disk, D, connected with the case C by the yoke A. The case C, arms A, and disk D are preferably cast in one piece. The upper surface of the disk D is shaped like a saucer, and is provided with radial grooves *r*, as shown. A suitable valve-stem, B, is connected with the valve *v*, and passes through a hole in center of disk D, resting upon a lever, L, having a fulcrum or pin, *p*. By means of the lever L this valve *v* is held firmly against its seat. The lever L passes through a suitable slot cut in the bottom of the disk D, and is bent, as shown in Fig. 4, to allow it to pass side of the arm A. At its outer end, which is formed with a hook, H, as shown in Fig. 4, the lever L engages with the short arm of the lever L', fulcrumed

on pin *p'*. The lever L' at its other end is united by a fusible solder-joint to a piece of brass, F, fastened to the sprinkler-case C by a pin, *p''*. The end of this lever L' is split. The two parts, being shaped, as shown in Fig. 4, are pressed together when forming the solder-joint with the piece F. The solder used for forming this joint is fusible at a temperature of about 155° Fahrenheit.

The operation of the sprinkler is as follows: The sprinkler is secured near the ceiling to a system of pipes furnishing water under pressure, as hereinbefore explained. When the fusible solder forming the solder-joint securing the outer end of the lever L' to the case C becomes soft or melted, as it does when heated to a temperature of about 155° Fahrenheit, depending upon the composition of the solder used, the two ends of the lever L' spring apart, rupturing the joint and entirely freeing the lever L', which falls, thus entirely disengaging the lever L, which in turn falls and allows the conical valve *v* to fall until it rests against the disk D, as shown by the dotted lines. The levers L and L' fall entirely away from the sprinkler, thus leaving no possible obstruction to the valve *v*. The water flows from the outlet in the bottom of the chamber C, striking the conical valve *v*, which now acts as a conical deflector, throwing the water against the disk D, by which it is broken into a spray, which is showered against the ceiling and over the surrounding area, thus securing a uniform distribution of the water. This conical deflector serves to break up and distribute any sediment which may have collected in the pipes. In this construction it will be noticed that the outer joint is at considerable distance from the case C, and is therefore not affected by the temperature of the water in it. The solder-joint is made in such a manner that the moment the solder becomes soft the joint is ruptured, due to the spring of the metal of the lever L', and this avoids all danger of sticking. The solder-joint J, being placed above the main portion of this apparatus, is protected from any accidental blow tending to rupture it. When the solder-joint is placed below the valve, there is danger of water dropping on the partially-opened joint, which would at once seal it in position and would

require a very intense heat before opening. In this construction the joint is placed above the valve entirely out of the reach of any water from the sprinkler.

- 5 By means of the combination of the levers L and L', a slight joint at J will be able to withstand a very considerable pressure in the chamber C, in this way requiring but a small quantity of metal for the joint J, thus securing
10 greater sensitiveness. A slight motion of the lever L' disengages the lever L, thereby securing prompt action of this valve v.

What I claim as new, and desire to secure by Letters Patent, is—

- 15 1. In an automatic sprinkler, a valve-seat, a conical valve, and a fixed saucer-shaped disk secured to and located below the valve-seat and provided with radial grooves, in combination with a compound-lever having a lower
20 bent arm fulcrumed in a slot on the outside of the fixed disk and provided with a fusible solder-joint on its upper arm above the valve-seat, all arranged and operating substantially as shown and described.

2. In an automatic sprinkler, the combination, with the case C and disk D, having a slot in its outer face, of a conical valve, v, bent lever L, mounted and fulcrumed in the slot in the disk D, and provided with the hook h, and the lever L', having a fusible solder-joint above
30 the valve-seat and engaging with and holding the lever L in place, substantially as and for the purpose shown and described.

3. In an automatic sprinkler, the combination, with the disk D, having slot on its outer
35 side, and the conical valve v, of the bent lever L, mounted in the slot in the disk and having the hook end h, the lever L' engaging with the hook h, and having its upper end slit and adapted to be sprung together when secured
40 with fusible solder to the projection F, located above the valve-seat, all arranged and operating substantially as and for the purpose shown and described.

FRANK B. COMINS.

Witnesses:

AMSDEN H. SMITH,
LUKE ALLEN.