

No. 813,061.

PATENTED FEB. 20, 1906.

E. V. SMITH.
AUTOMATIC SPRINKLER.
APPLICATION FILED MAY 19, 1905.

Fig. 1.

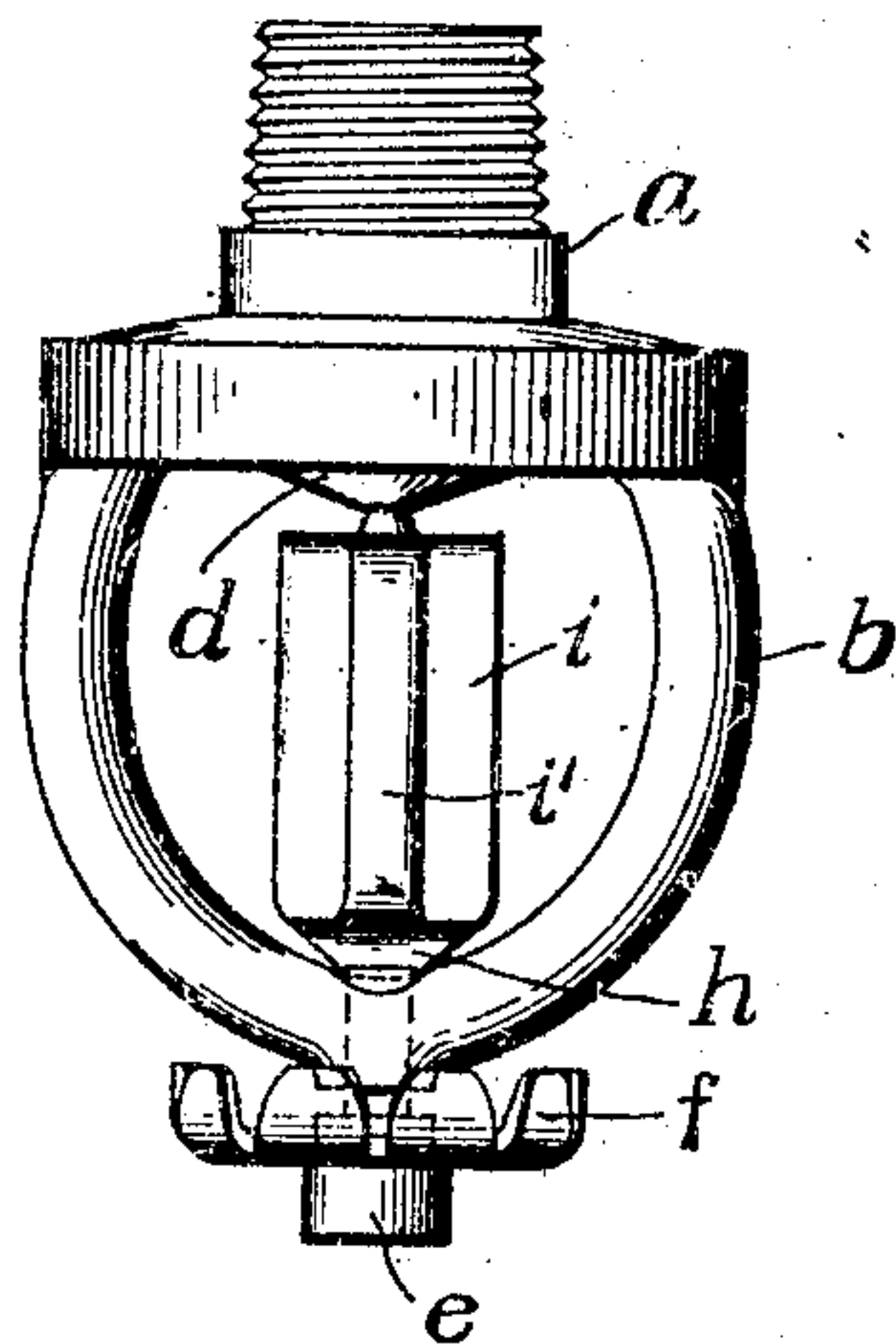


Fig. 2.

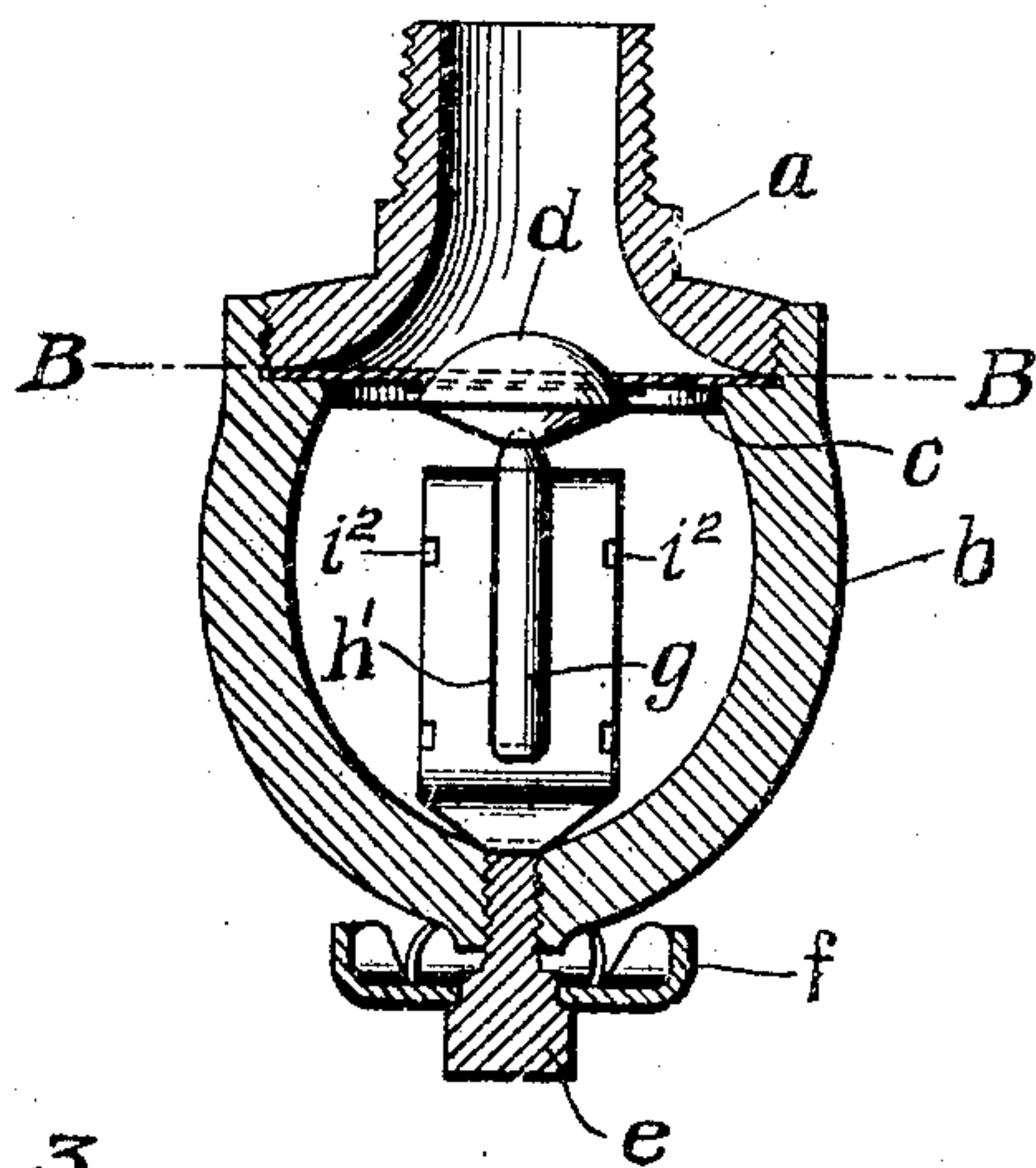


Fig. 3.

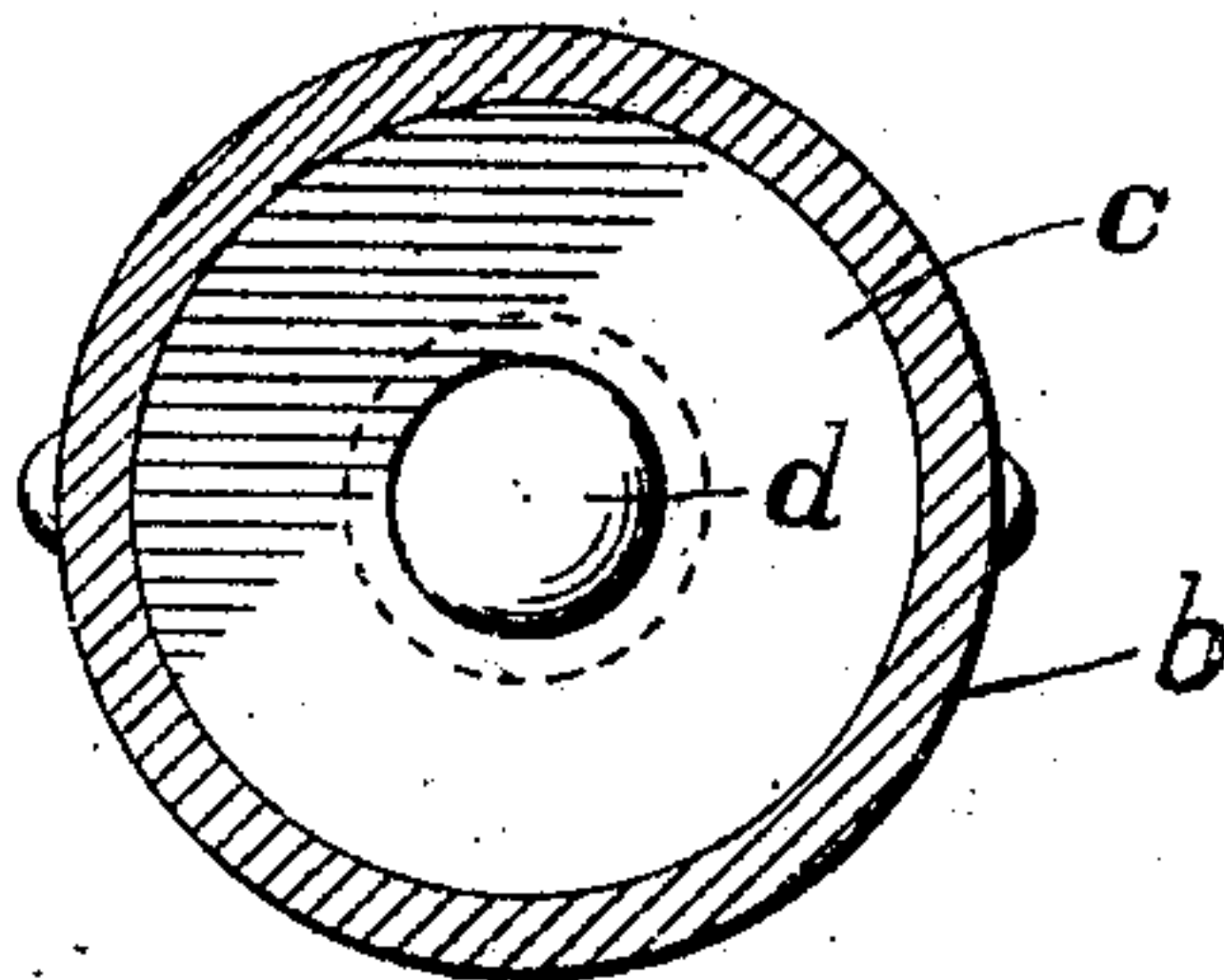


Fig. 4.

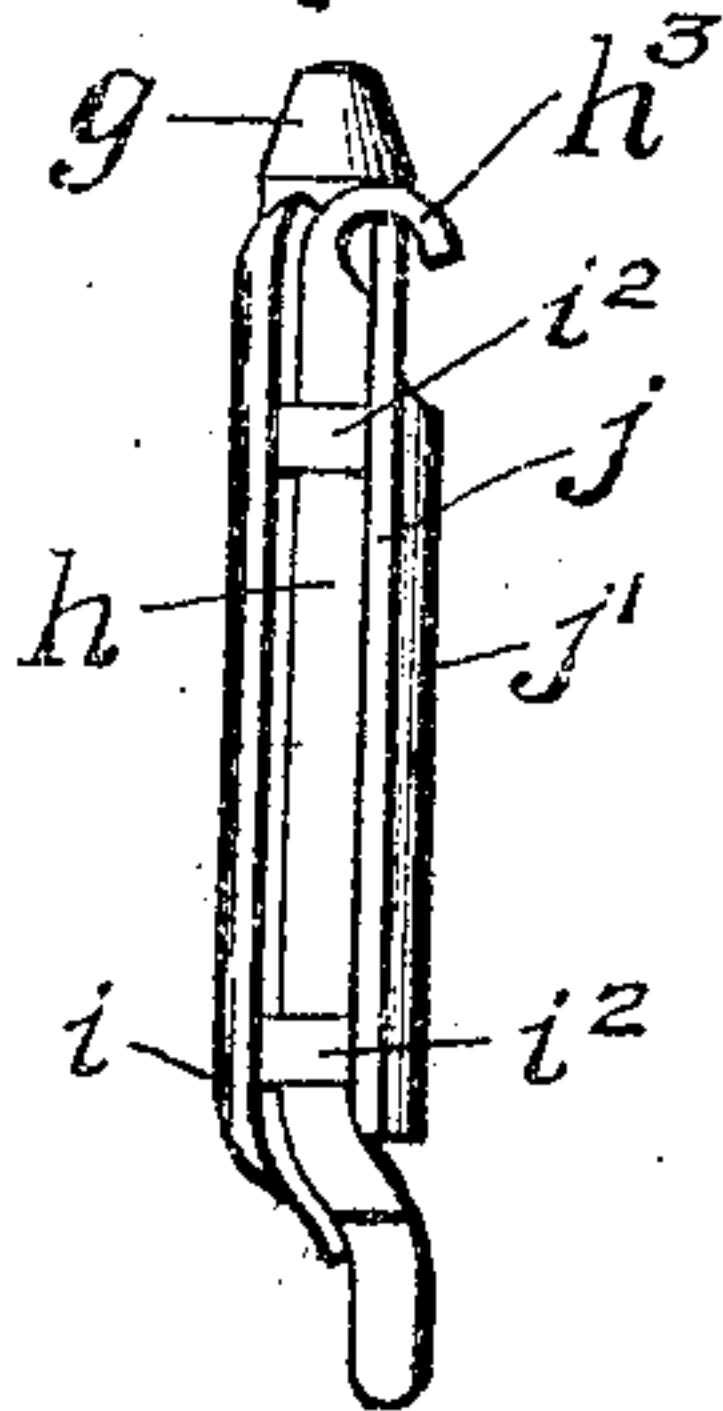


Fig. 5.

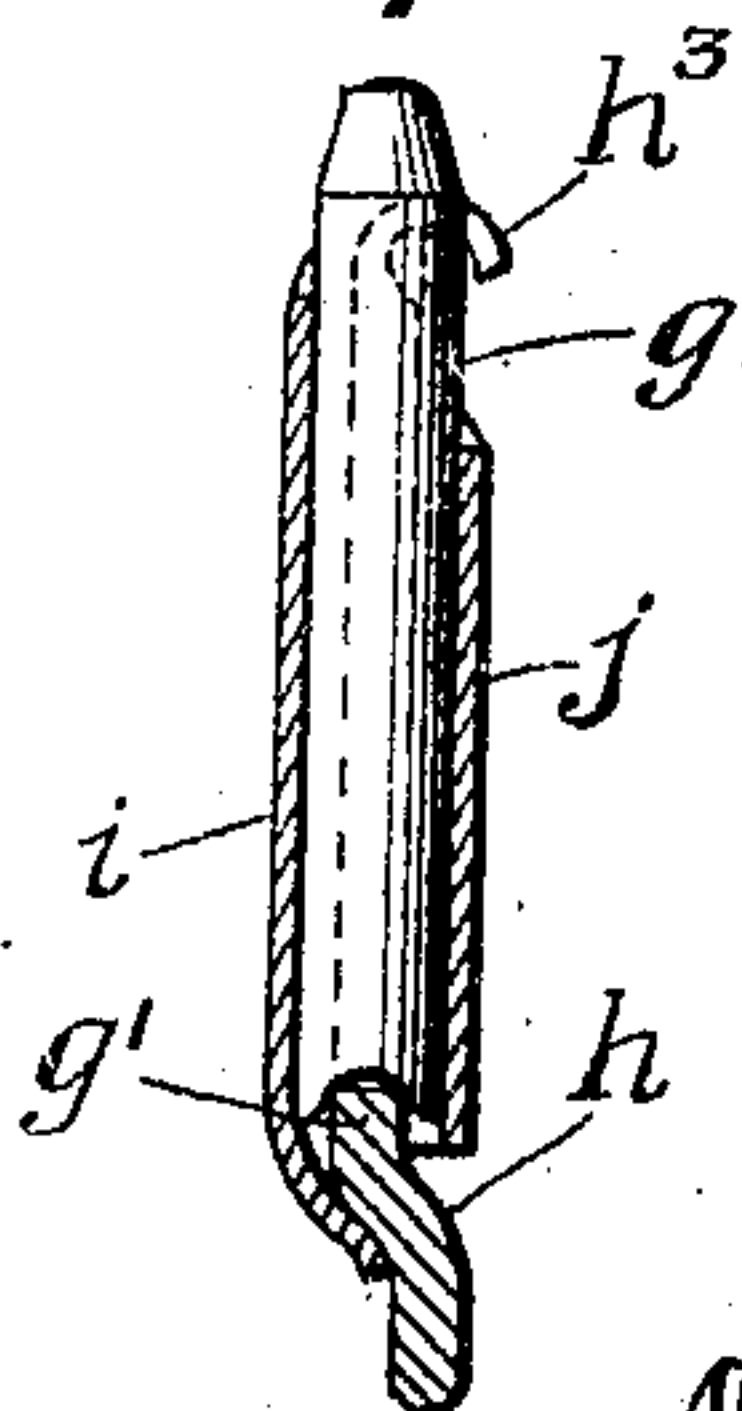


Fig. 6.

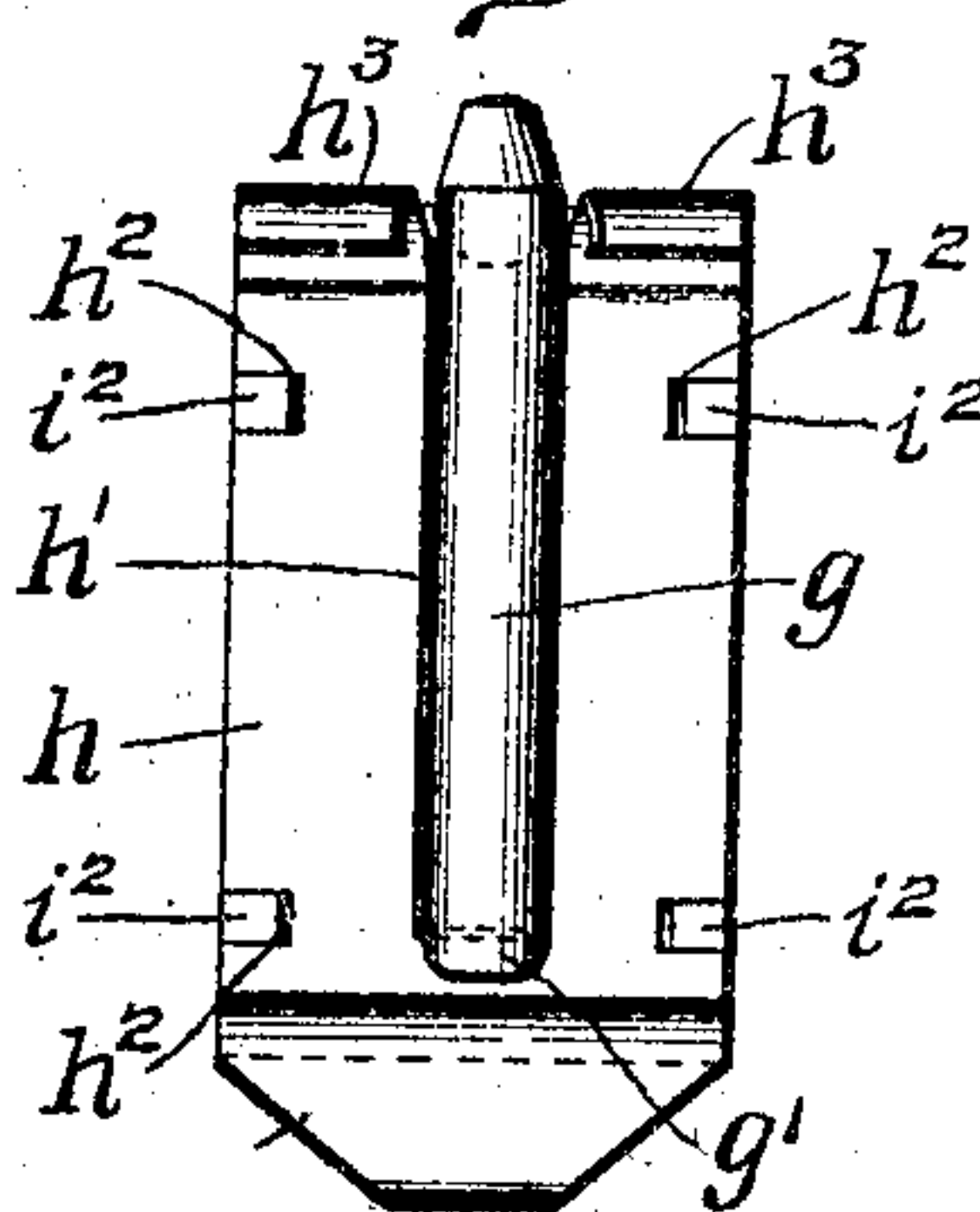
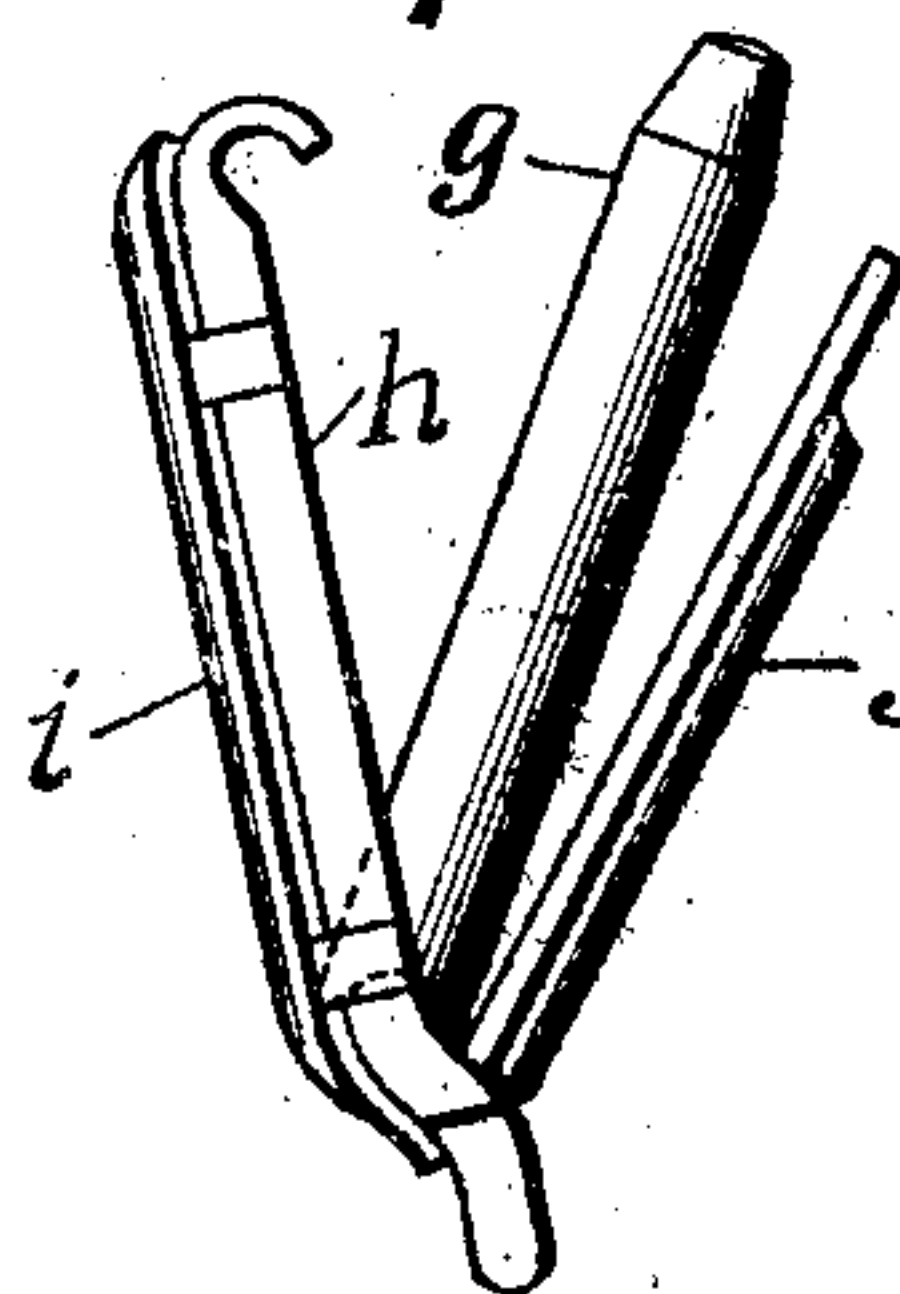


Fig. 7.



WITNESSES:

D. Webster, Jr.
A. M. Kelly.

INVENTOR

E. V. Smith

BY

Wm. Maudslayi
ATTORNEY.

UNITED STATES PATENT OFFICE.

ELVINO V. SMITH, OF PHILADELPHIA, PENNSYLVANIA.

AUTOMATIC SPRINKLER.

No. 813,061.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed May 19, 1905. Serial No. 261,137.

To all whom it may concern:

Be it known that I, ELVINO V. SMITH, of the city and county of Philadelphia, State of Pennsylvania, have invented an Improvement in Automatic Sprinklers, of which the following is a specification.

More particularly my invention relates to the fusible valve-supporting strut which holds the valve on its seat and is adapted when fused to fall apart and release the valve.

In most of the plants in which automatic sprinklers are used they are subjected to acid, gases, fumes, and vapors, which acting on the fusible connections or solder produce corrosion and destroy or materially reduce the fusibility, thereby rendering the sprinklers ineffective.

It is one of the objects of this invention to avoid this corrosion of the fusible connections by so protecting them that they are not subjected to the action of such acid, gases, &c., and that their normal fusibility is preserved and rendered available when the emergency for which the device is provided arises. This object I accomplish by so shielding the fusible connections between the two supporting members that they are not exposed until the shields are released by the fusing of the solder which unites them to said supporting members.

It is also an object of my invention to render the separation of the parts when their connections are fused certain and quick, and this object I accomplish not only by the protection of the fusible connection to prevent corrosion, but also by the employment of the solder or fusible material in such manner that when fused it acts as a lubricant to facilitate the separation of the members.

It is a further object of my invention to impart special strength to the strut, so that the requisite amount of tension may be placed on the valve without danger of breaking the fusible connection under strain.

In the drawings, Figure 1 is a side elevation of my automatic sprinkler. Fig. 2 is a vertical section of the same with one shield-plate of the fusible strut removed. Fig. 3 is a horizontal section on the line A A of Fig. 2. Fig. 4 is a side elevation of the fusible strut. Fig. 5 is a vertical section of the same with the post in elevation. Fig. 6 is a front elevation with the outer shield-plate removed; and Fig. 7 is a side elevation of the strut, illus-

trating the action of the parts when fused and falling apart.

a is the usual nozzle, which is screwed into the supply-pipe and which carries the usual frame *b*, by which the valve is supported.

c is the flexible diaphragm between the nozzle and frame, which forms the flexible seat for the valve *d*.

e is the usual screw in the bottom of the frame *b*, which bears on the end of the valve-supporting strut and by which the tension of the valve on the flexible seat *c* may be adjusted.

f is the usual rotary distributor, supported on the screw *e*.

So far as the sprinkler has been described it is of well-known construction, and I do not mean to limit my strut to use with a sprinkler of this particular character, as it may be used equally well with other forms.

The strut consists of a plate, one end of which constitutes one point of support, a valve-supporting piece supported by said plate and supporting the valve, and one or more protecting shields or plates arranged over the face of the first plate and the valve-supporting piece, said plates being fusibly united together and to the body of the valve-supporting piece at their adjacent faces.

h is a plate provided with a vertical slot *h'*, extending from near the base up through the upper edge. *g* is a post fitting in this slot and having its lower end (which is preferably notched, as at *g'*) supported by the plate *h* at the lower end of the slot. The upper end of the post *g* projects beyond the edge of the plate and bears against the valve *d*. *i* is a shield fitting over one side of the plate *h* and post *g* and grooved, as at *i'*, to receive the post. The plate *i* is preferably provided with small lugs *i²* on the side edges, which engage notches *h²* on the plate *h*.

j is a shield fitting over the other side of the plate *h* and post *g* and similarly grooved, as at *j'*, to receive the post. The upper edge of the plate *h* is provided with hooks *h³*, which extend over the upper edge of the shield-plate *j*. The parts *h g i j* when thus assembled are soldered together and form the fusible supporting-strut for the valve. The lower end of the plate *h* rests on the screw *e*, and this end is bent, as shown, to bring the point of support out of the direct line of the post. The solder is allowed to

flow between the plates *h i j* and about the post *g* and firmly unites them without anywhere being exposed to the acids and gases of the room, which so frequently result in corrosion and destroy the fusibility.

The use of a post *g* contained in the slot *h'* of the plate and soldered therein and to the shielding-plates *i j* makes a very strong structure, which will stand a very substantial strain without danger of rupture of the fusible connections, and as the solder or fusible material is all protected, and therefore not liable to corrosion, more solder may be used than would otherwise be practical, which not only increases the strength, but aids the separation when fused by reason of the lubricating action of the fusible material.

The strut thus formed is placed, as shown in Fig. 1, with the end of the post *g* bearing on the valve *d* and the end of the plate *h* resting on the screw *e*, which is adjusted to give the desired tension on the valve.

When the solder is fused, the parts will fall apart, as shown in Fig. 7. The outer shield-plate *j* becomes disengaged from the hooked ends *h³ h³* of the plate *h* and releases that plate and the plate *i*, which will then fall away in the other direction. This movement of the plate *h* lowers the post *g*, which then falls in the direction of the plate *j*, and the valve *d* opens.

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

1. A fusible valve-supporting strut for automatic sprinklers, consisting of a vertically-slotted member the lower end of which constitutes one strut end, and a post supported at one of its ends only in the inner end of the slot of the other member and the upper free end forming the other strut end, said post being unsupported by the slotted member adjacent to its strut end, and said parts being fusible united, whereby on the fusing of the connection the movement of said slotted member will lower the point of support between the inner end of its slot and the post, and result in allowing the post to drop.

2. A fusible valve-supporting strut for automatic sprinklers, consisting of a vertically-

slotted member the lower end of which constitutes one strut end, and a post supported at one of its ends only in the inner end of the slot of the other member, and the other free end being unsupported and forming the other strut end of the device, and an outer shield-plate located over the face of said slotted member and the body of the post, said shield and slotted member being fusibly united together at their adjacent faces.

3. A fusible valve-supporting strut for automatic sprinklers, consisting of a vertically-slotted member the lower end of which constitutes one strut end, and a post supported at one of its ends only in the inner end of the slot of the other member, and the other free end being unsupported and forming the other strut end of the device, and outer shield-plates arranged over the faces of the slotted member and post and fusibly united to them.

4. A fusible valve-supporting strut for automatic sprinklers, consisting of the longitudinally-slotted plate *h*, the post *g* positively supported at one end only in the inner end of said slot the other end constituting one strut end and being unsupported, and the shield-plates *i* and *j* arranged one on each face of the plate *h* and covering the body of the post *g*, said plates *h, i, j* being fusibly united together and to the post *g* at their adjacent faces.

5. A fusible valve-supporting strut for automatic sprinklers, consisting of the longitudinally-slotted plate *h* having the hooked portion *h³* at the upper end of the slot, the post *g* positively supported at one end only at the inner end of said slot, the other end constituting one strut end and being unsupported by said slotted member, and the shield-plate *j* arranged over one face of the plate *h* and post *g* and having its upper edge engaged by the hooked portion *h³*, said plates being fusibly united together and to the post *g*.

In testimony of which invention I hereunto set my hand.

ELVINO V. SMITH.

Witnesses:

ERNEST HOWARD HUNTER,
R. M. KELLY.