

G. I. ROCKWOOD.  
AUTOMATIC SPRINKLER.  
APPLICATION FILED JUNE 3, 1907.

Patented Mar. 8, 1910.

951,339.

Fig. 1.

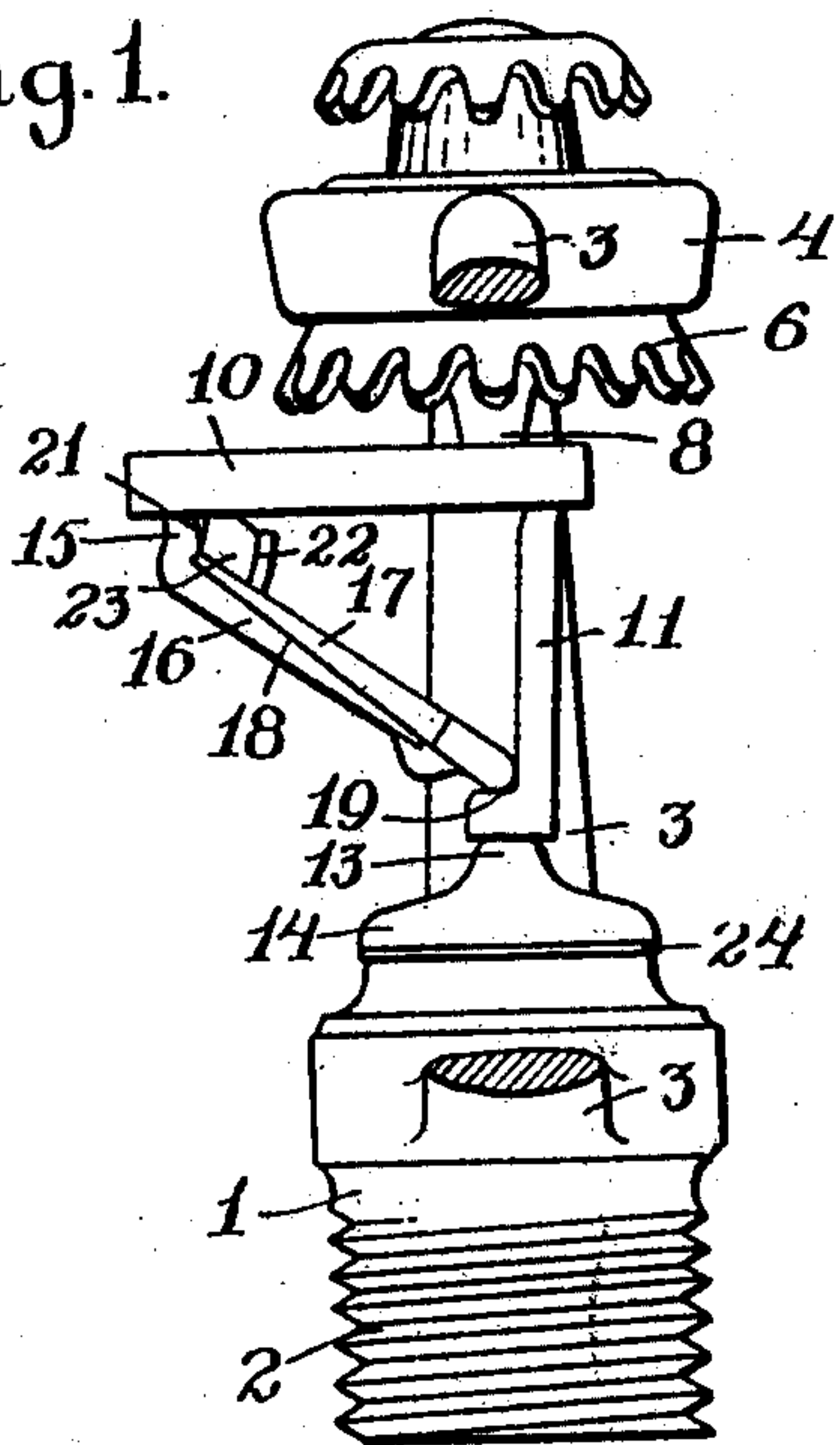


Fig. 2.

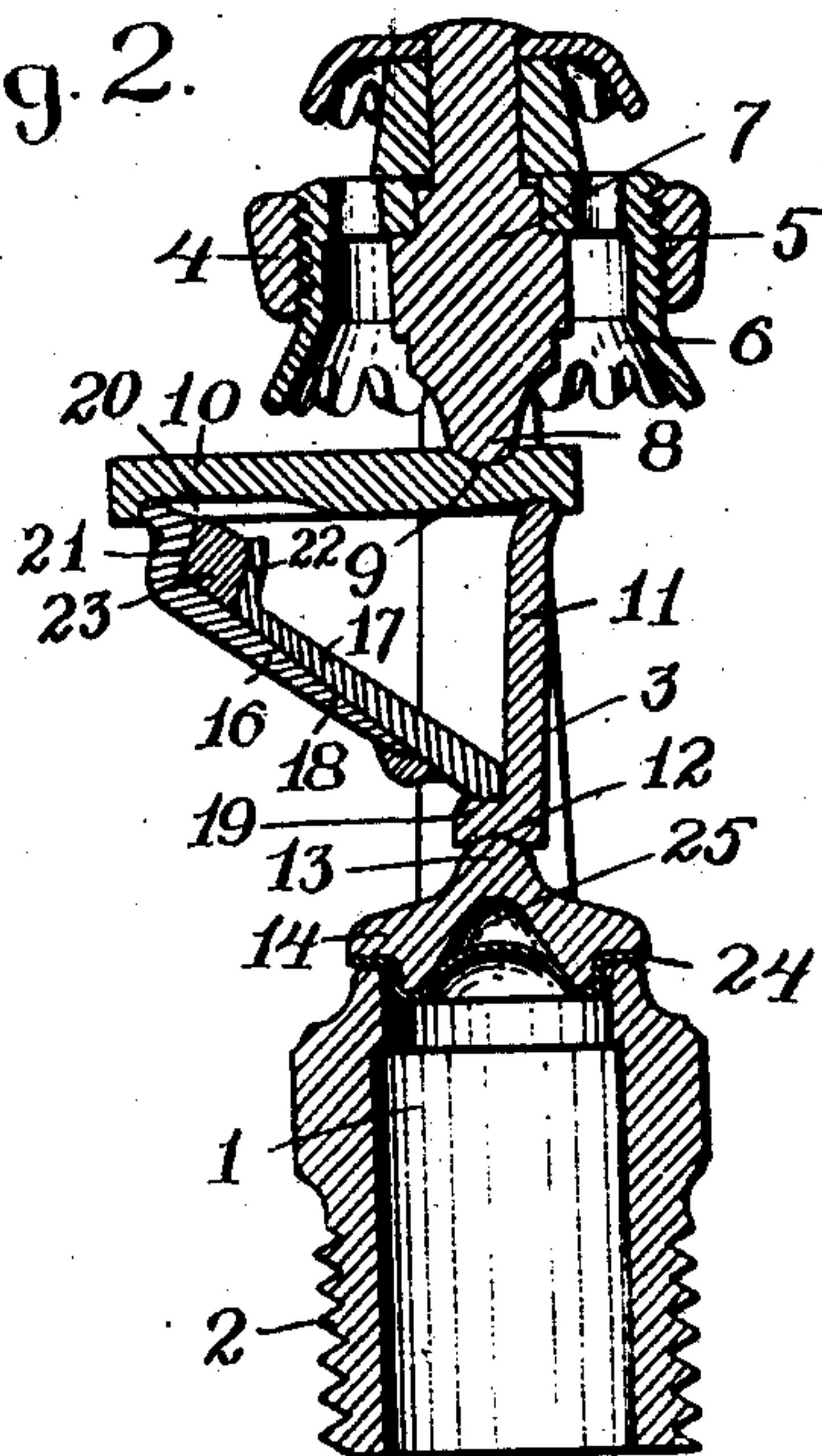


Fig. 3.

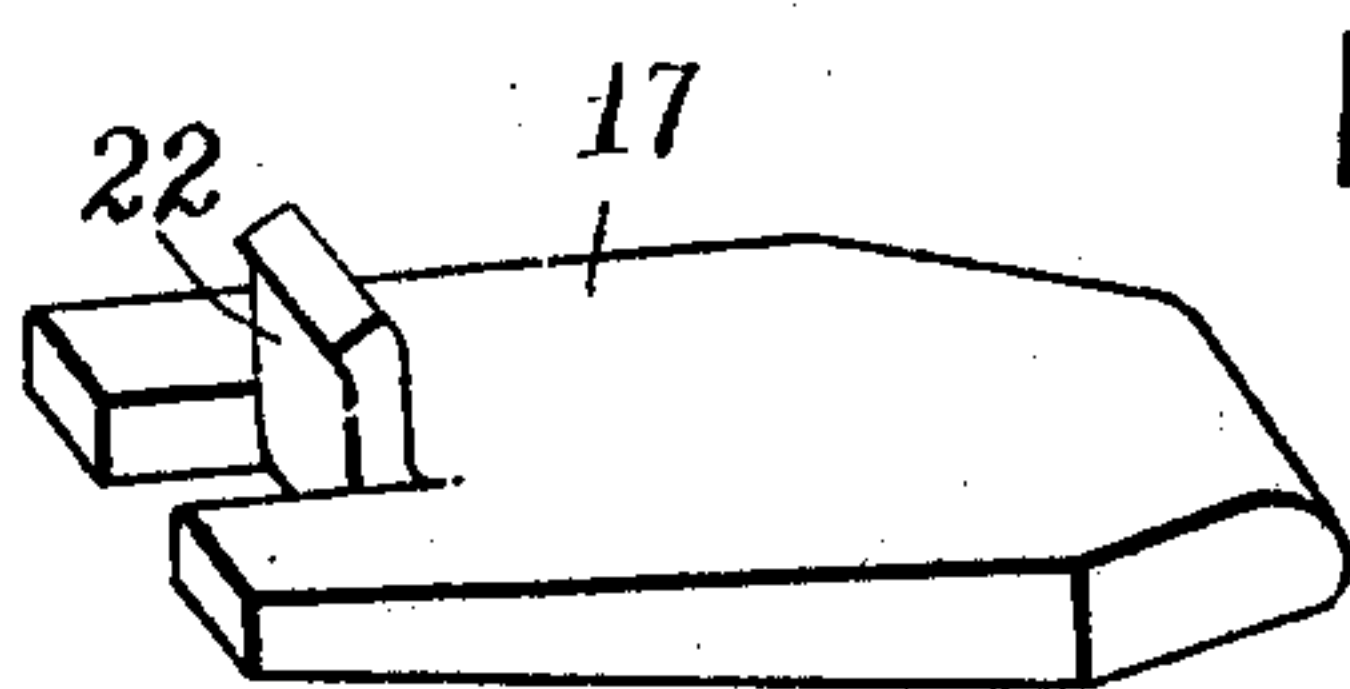
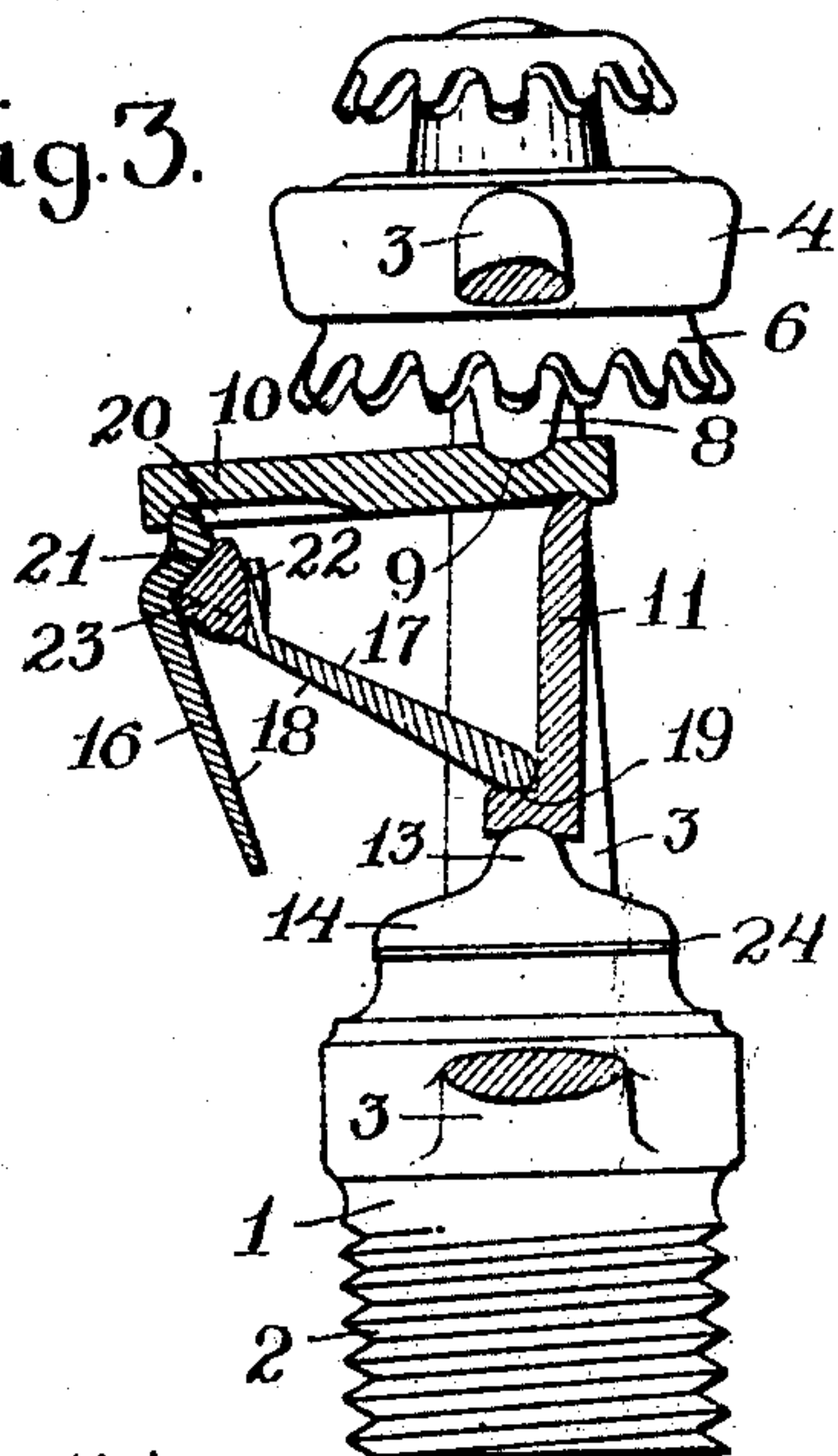


Fig. 4.

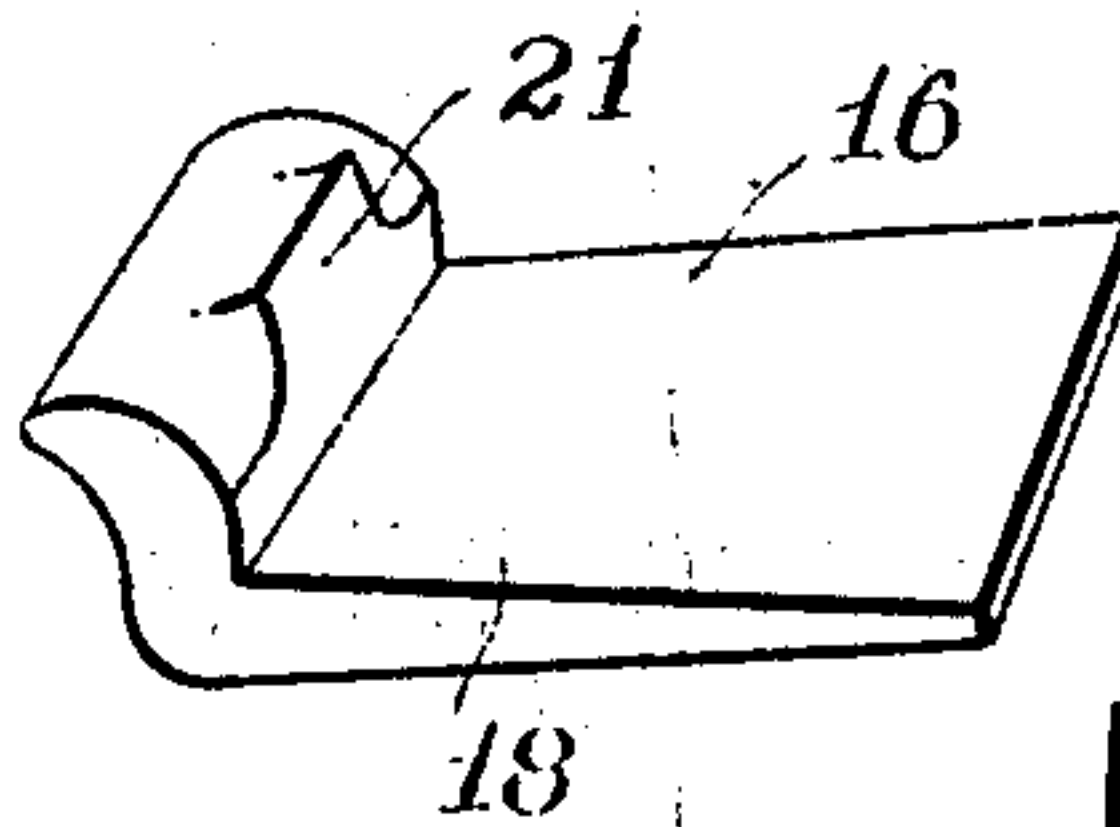


Fig. 5.

Witnesses

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# UNITED STATES PATENT OFFICE.

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AUTOMATIC SPRINKLER.

951,339.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, GEORGE I. ROCKWOOD, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Automatic Sprinklers, of which the following is a specification, accompanied by drawings forming a part of the same, in which—  
Figure 1 represents a side elevation of an automatic sprinkler embodying my invention and having one of its arms removed in order to disclose the cap retaining device. Fig. 2 represents a side elevation of my improved sprinkler shown in central sectional view. Fig. 3 is a side elevation of my improved sprinkler with one of its arms removed, and having the cap retaining device shown in vertical sectional view showing the position of the several parts of the cap retaining device whenever its soldered members have become separated without fusion, and Figs. 4 and 5 show detached perspective views of the two members forming the strut of the cap retaining device.

Similar reference figures refer to similar parts in the different views.

My present invention relates to that class of automatic sprinklers in which a water nozzle is closed by a cap normally held in position under pressure by a cap retaining device containing a fusible member that allows the cap retaining device to collapse under the pressure applied when a predetermined degree of heat has been reached, and it has for its objects to provide against the premature release of water before the predetermined degree of heat has been reached and further to provide a telltale by which the freezing of the water in the pipes may be detected, and I accomplish these objects by the construction and arrangement of parts as hereinafter described and pointed out in the annexed claims.

Referring to the accompanying drawings 1 denotes a nozzle provided with a screw thread 2 by which it may be connected with a pipe containing water under pressure. The nozzle 1 is provided on diametrically opposite sides with vertical arms 3, supporting at their upper ends a collar 4 having an internal screw thread 5 to receive a diffuser 6, in which is journaled a spindle 7 having its lower end or tip 8 coincident with the axis of the nozzle 1 and fitting a recess 9 in the upper surface of a horizontal lever 10.

The end of the lever 10 nearest the recess 9 bears upon the upper end of a post 11, the lower end of which is slightly recessed at 12 and bears upon the conical tip 13 of a cap 14 which rests upon and closes the upper end of the nozzle 1. The end of the lever 10 farthest from the recess 9 is supported upon the upper end of a brace or strut 15, comprising two pieces 16 and 17 having contacting surfaces 18 which are soldered together by a fusible solder melting at a predetermined degree of heat, preferably approximating 160°. The lower end of the strut-piece 17 is supported upon a shoulder 19 at the lower end of the post 11, and the upper end of the strut-piece 16 is received in a recess 20 upon the under side of the horizontal lever 10. The diffuser 6 is screwed downward in the collar 4 to apply a pressure through the cap retaining device to hold the cap 14 against the pressure of water in the nozzle 1 until a predetermined degree of heat, say 160°, has been reached, when the two strut-pieces 16 and 17 become separated by the melting of the fusible solder between their contacting surfaces 18, causing the collapse of the cap retaining device, consisting of the lever 10, post 11 and strut 15, thereby releasing the cap 14 and allowing a current of water to be thrown upward against the diffuser 6.

It is one of the objects of my present invention to provide means for preventing the premature release of the cap 14, and the damage consequent from the flow of water due to the separation of the strut-pieces 16 and 17 by means of the pressure applied thereto before the degree of heat has been reached sufficient to melt the solder, and I accomplish this result by providing the two strut-pieces 16 and 17 with compressing surfaces 21 and 22 at substantially right angles to the line of pressure between the opposite ends of the strut 15, and I fill the space between the compressing surfaces 21 and 22 with compressible material 23 capable of being fused at the predetermined degree of heat required for the complete collapse of the cap retaining device. In case the contacting surfaces 18 of the strut-pieces 16 and 17 become separated before the uniting solder is melted, the strut-piece 16 will assume the position shown in Fig. 3, due to the pressure exerted upon the lever 10 producing a slight compression of the compressible material



between the surfaces 21 and 22 and allowing the lever 10 to fall slightly, thereby releasing a portion of the pressure normally exerted upon the cap 14 and resisted by the 5 strut. The compressible piece 23 then being held between the compressing surfaces 21 and 22 and in the line of pressure resisted by the strut serves to hold the cap 14 from being thrown off the nozzle 1 until 10 the degree of heat required to fuse the compressible material 23 has been reached, when the complete collapse of the cap retaining device is accomplished, allowing the cap 14 to be lifted and the stream of water to be 15 thrown against the diffuser 6. While the parts of the cap retaining device are in the position shown in Fig. 3 the pressure upon the cap 14 will be sufficiently reduced to allow a slight leaking around the cap, which 20 will indicate the particular sprinkler in which the strut-pieces have been imperfectly united.

Beneath the cap 14 I insert a thin disk 24 of noncorrosive material to prevent the ad- 25 hesion of the cap and nozzle by oxidization, and I recess the under side of the cap 14 at 25 in order to leave the central part of the disk 24 unsupported against the pressure exerted beneath it. The disk 24 is suffi- 30 ciently strong to resist normal water pressure, but in case the pipe becomes frozen the excess of pressure against the disk 24 will be sufficient to force the disk upward into the space 25 and cause the puncture of the 35 disk. The disk 24, therefore, becomes a tell-tale to indicate whether the water nozzles have been frozen since the installation of the sprinkler system.

I claim,

40 1. In an automatic sprinkler, the combination in a cap retaining device with a brace composed of separate pieces having contacting surfaces parallel with the line of strain and arranged to separate at a prede- 45 termined degree of heat, of a fusible mate-

rial arranged to resist the strain upon said brace after the separation of said parallel surfaces.

2. In an automatic sprinkler, the combination in a cap retaining device with a com- 50 posite brace arranged to separate at a predetermined degree of heat, thereby releasing said cap, of fusible means arranged to resist the strain of said cap after the separation of said brace. 55

3. In an automatic sprinkler, a cap retaining device, comprising a composite brace having surfaces parallel with the line of strain exerted upon said brace by said cap and united by solder fusible at a pre- 60 determined degree of heat, and surfaces at right angles to said line of strain after said parallel surfaces are separated with fusible material between them.

4. In a cap retaining device for an auto- 65 matic sprinkler, the combination with a brace in two pieces having surfaces parallel with the line of strain exerted upon said brace by said cap and united by solder fusible at a predetermined degree of heat, 70 each piece also having an arm arranged to be at right angles to said line of strain when said parallel surfaces are separated, and a piece of fusible material between said arms arranged to prevent their approach when 75 said parallel surfaces are separated.

5. In a cap retaining device for an automatic sprinkler, the combination with a brace comprising two pieces having compressing surfaces at right angles to the line 80 of strain exerted upon the brace by said cap, of a piece of compressible material fusible at a predetermined degree of heat between said compressing surfaces, arranged to resist the strain upon said compressing 85 surfaces tending to collapse the brace.

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Witnesses:

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