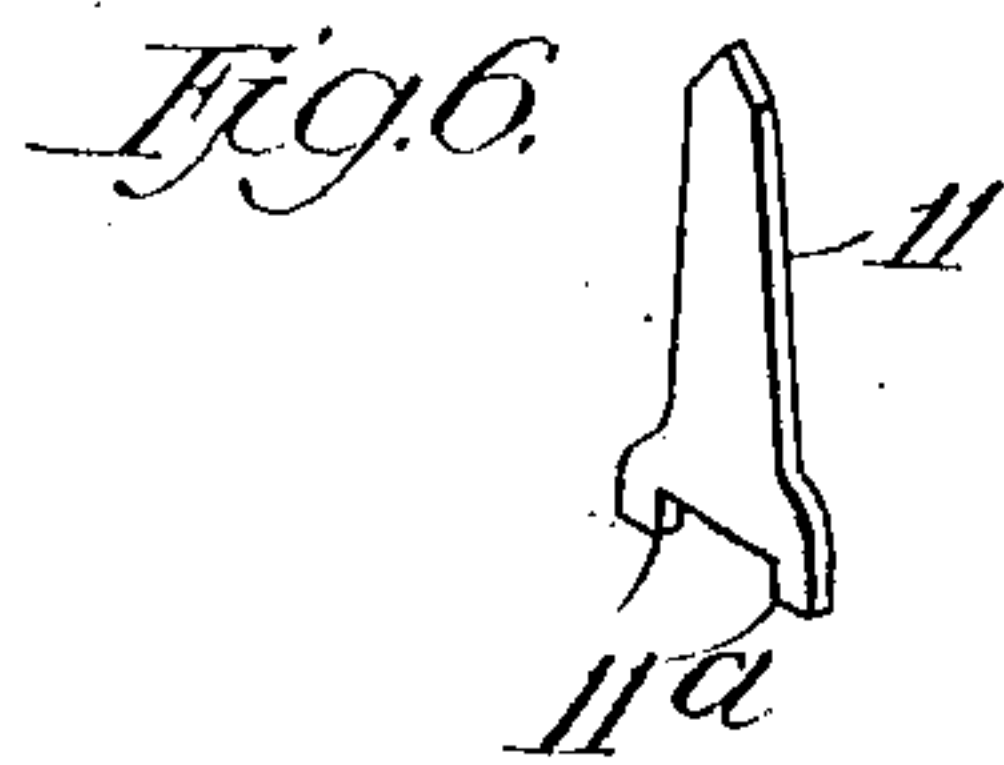
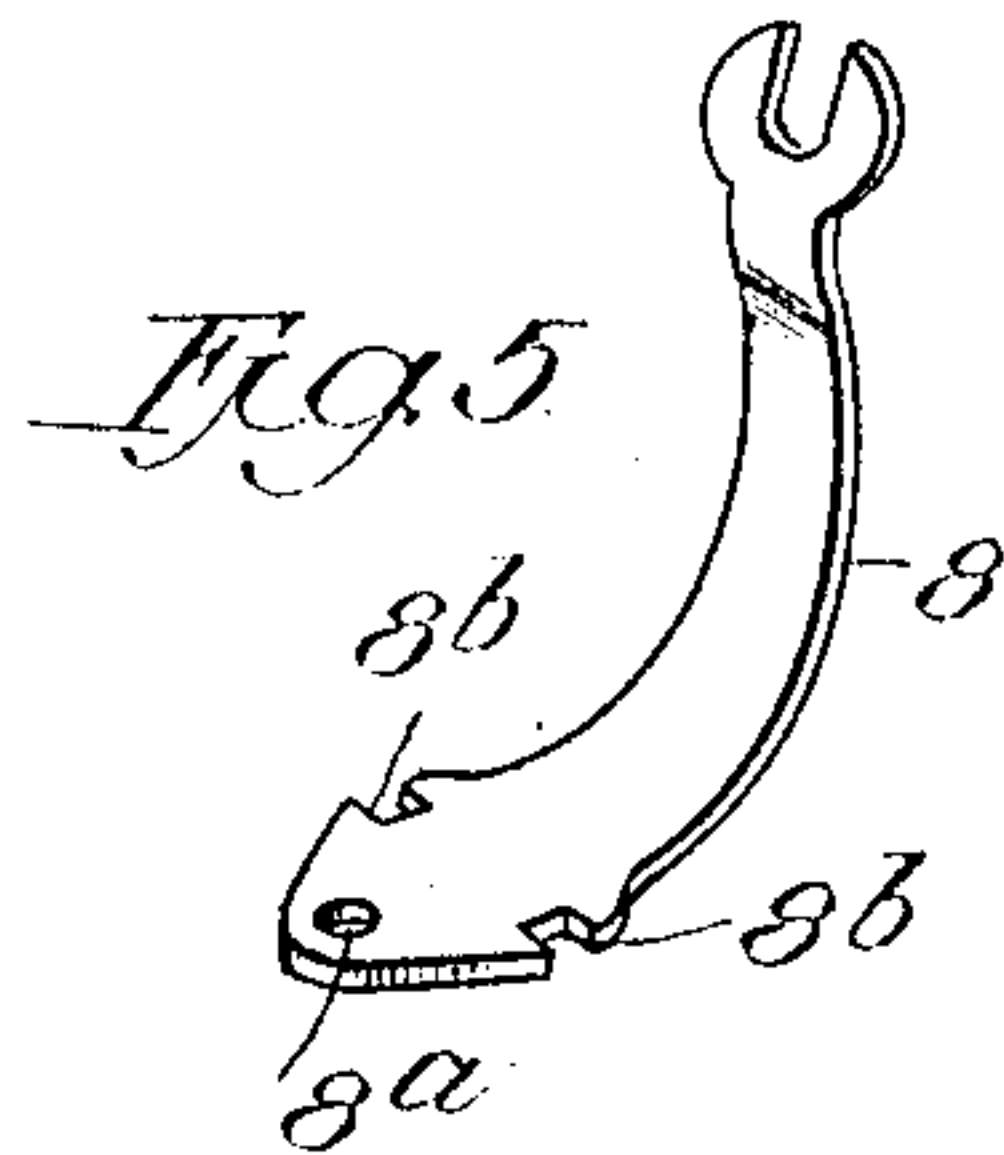
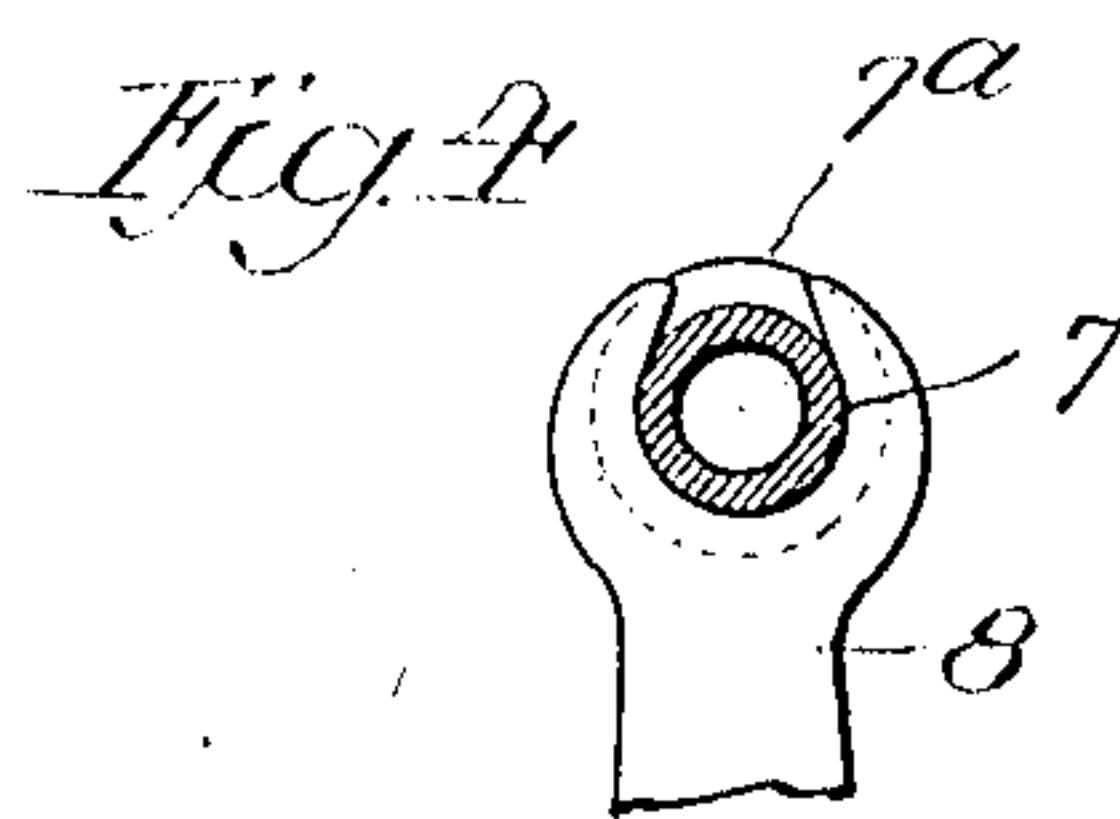
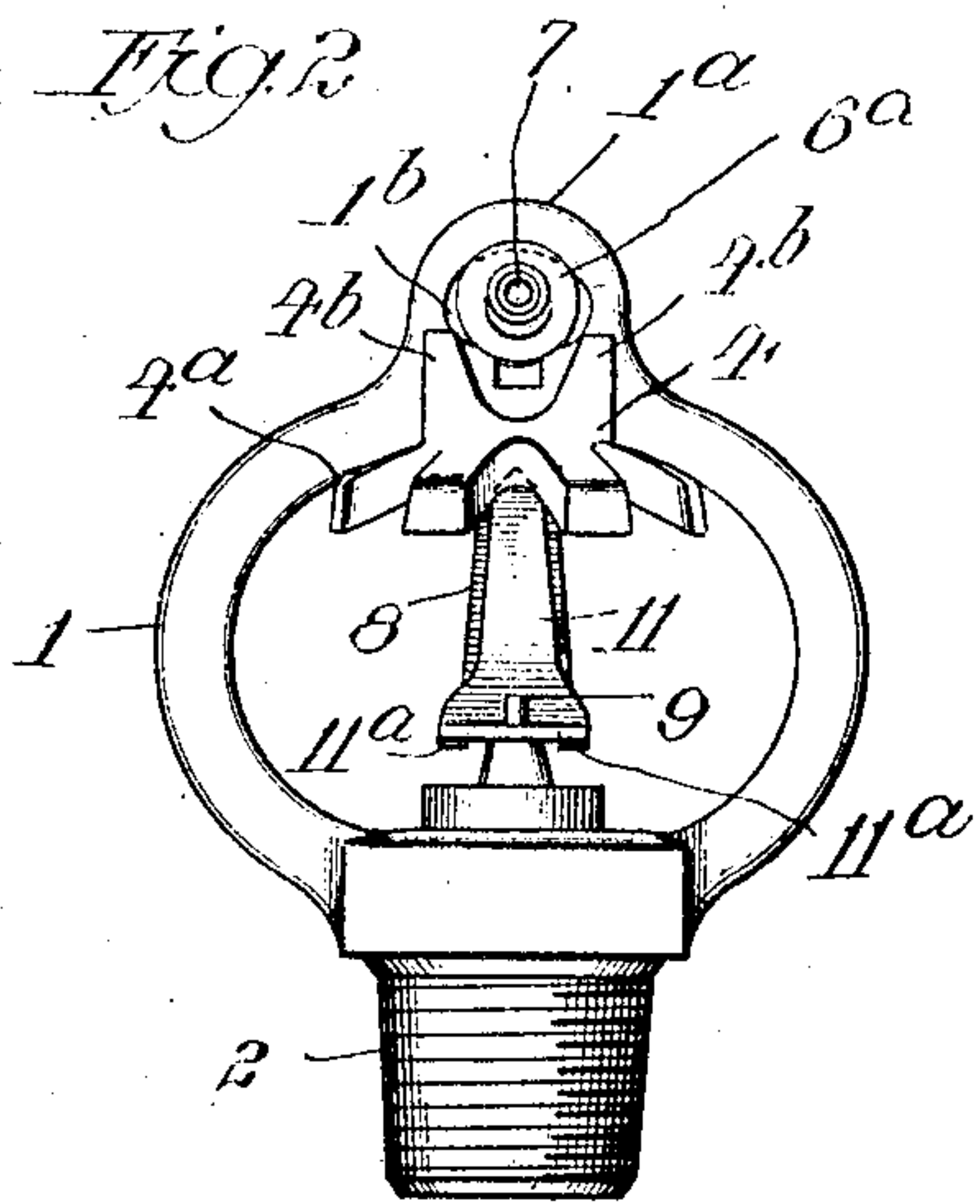
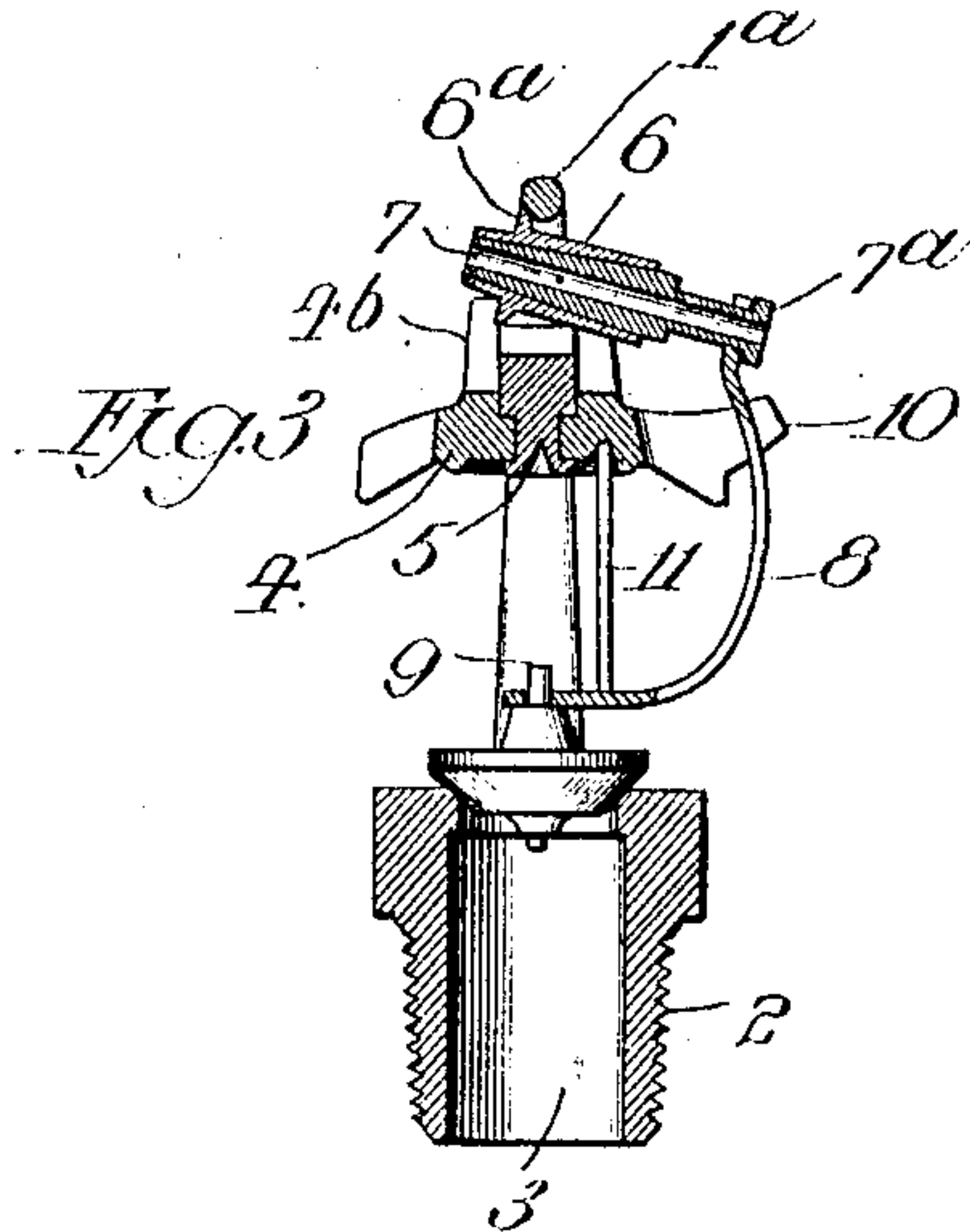
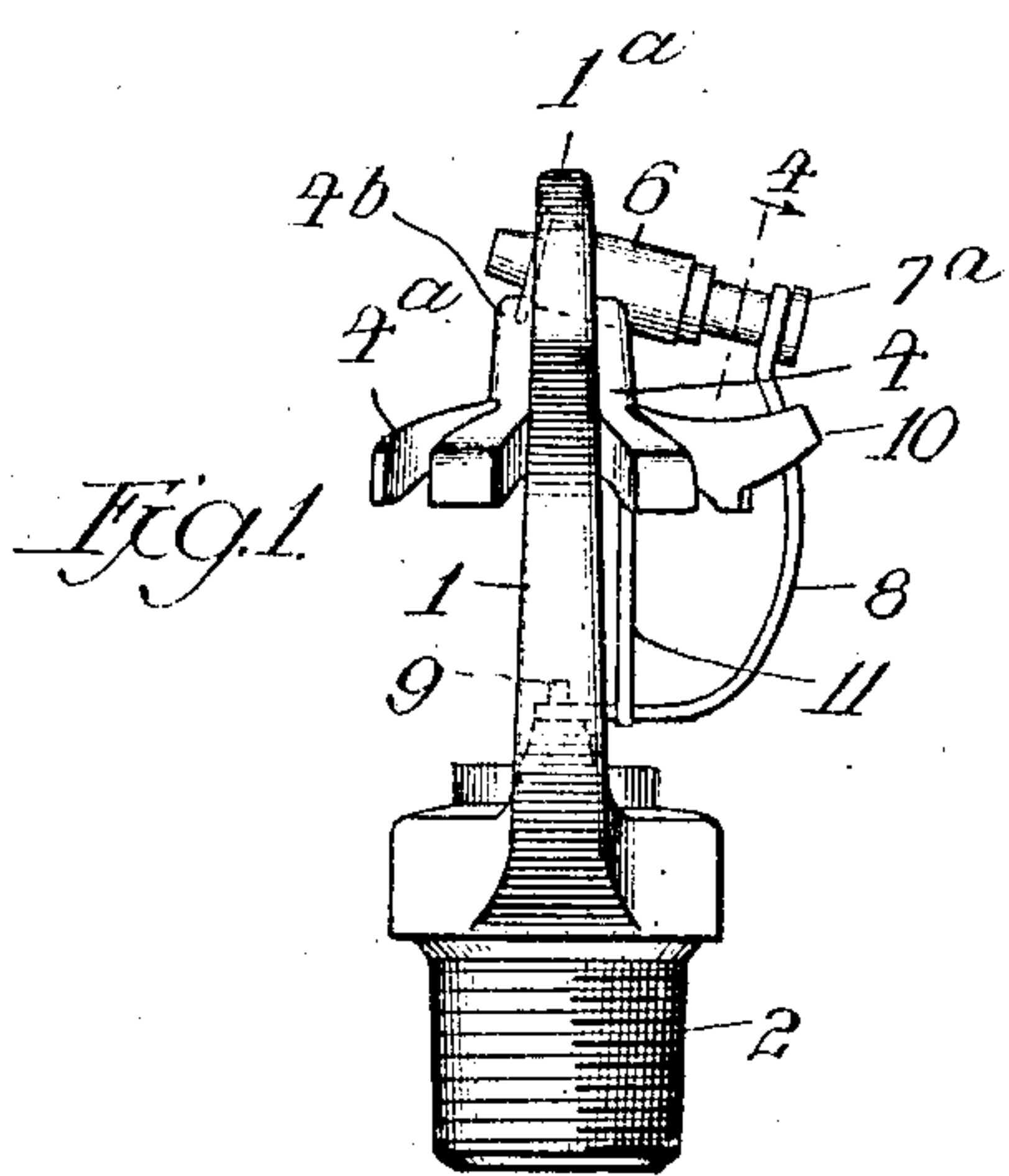


A. BLAUVELT.
SPRINKLER HEAD.

APPLICATION FILED AUG. 22, 1904

920,252.

Patented May 4, 1909.



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UNITED STATES PATENT OFFICE.

ALBERT BLAUVELT, OF CHICAGO, ILLINOIS.

SPRINKLER-HEAD.

No. 920,252.

Specification of Letters Patent.

Patented May 4, 1909.

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To all whom it may concern:

Be it known that I, ALBERT BLAUVELT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sprinkler-Heads, of which the following is a specification.

My invention relates to what are commonly known as sprinkler heads attached to the distributing pipes of an automatic fire sprinkler system and controlling vents or openings in such pipes for the escape and sprinkling of water, it being understood that in the case of a dry pipe system air under compression is first released before the water escapes.

The object of my invention is to produce an efficient, reliable and positively acting device of this character, whose features of advantage will be apparent from the description hereinafter given.

In the drawings, Figure 1 is a side elevation of my sprinkler head; Fig. 2 another elevation at right angles to that illustrated in Fig. 1; Fig. 3 a central vertical section of the sprinkler head; Fig. 4 an enlarged sectional view on the line 4 of Fig. 1, and Figs. 5 and 6 detail views of two of the strut members.

The head proper is in the main substantially of the conventional form, except as to certain details hereinafter pointed out,—that is to say, such sprinkler head consists of a yoke 1 and a nozzle 2 arranged to screw into the distributing pipe and provided with the water passage 3, whose upper end is formed as a valve seat in order to receive the valve. Unlike the conventional form of sprinkler head, however, the deflector, marked 4, is arranged within the confines of the yoke, such deflector being a body or casting having a series of points or projections 4^a for the purpose of deflecting and sprinkling the water emitted from the water passage 3. In the present instance this deflector is provided with two pairs of lugs 4^b adapted to embrace the upper end of the yoke, as clearly indicated in Figs. 1, 2 and 3. Such yoke is provided with a downwardly extending rivet-like projection 5, which extends through a central opening in the deflector and is riveted against the under side or face of such deflector, as indicated in the section in Fig. 3, with the result that the deflector is securely held in proper position and firmly attached to the yoke.

The upper end of the yoke is provided with an extension 1^a having an opening 1^b, which is adapted to receive and retain a cylindrical link 6. It is desired that this link shall have considerable freedom of movement in the opening 1^b, and also that there shall be as much space as possible between such link and the yoke, to which end the opening in the yoke is made considerably larger than the cylindrical body of the link, but arranged to engage the link at several points and thereby retain the same in the desired position. In the present instance such link is provided with a circumferential flange 6^a, which presses or bears against the yoke at several points, instead of bearing solidly or continuously against the yoke.

The link 6 is provided with a taper, as indicated in Fig. 3, and is arranged to receive a hollow plug 7, whose outer end is provided with a flange 7^a. The link and plug form a portion of the strut construction or arrangement for governing the opening of the valve; the link and plug being normally held together in the relative position in Figs. 1, 2 and 3, by means of ordinary fusible solder along their respective and corresponding tapers. In order that the heat may act quickly upon the solder and thereby assure a sensitive and positive device, sufficient air space or clearance is left between the link and the yoke, as already described, and likewise the plug is made hollow in order that the air may circulate therethrough. The strut device also comprises an arm of spring 8, whose upper end is bifurcated as indicated in Figs. 3, 4 and 5, and adapted to receive the reduced neck of the plug 7 and bear against the inward flange 7^a thereof. The main body portion of this spring is substantially longitudinal of the sprinkler head, but the lower end is deflected laterally and inwardly toward the valve and provided with a hole or opening 8^a. This opening or hole is adapted to receive a pin or projection 9 rising upwardly from the valve, but is of such a size as to afford some play between the spring and the pin, for a purpose hereinafter made apparent. In order to avoid lateral displacement or movement of the spring 8, the deflector is provided with a pair of lugs 10, which are extended laterally a sufficient distance to bring the spring 8 between them, but such spring is in the normal condition illustrated in the drawings.

Between the deflector and the lower end of the spring is arranged a strut arm or fulcrum pin 11, whose upper end bears in a recess in the deflector, and whose lower end bears directly
5 against the spring. In order to hold such lower end of the fulcrum pin in proper relative position, the spring is provided with recesses 8^b formed on opposite sides or edges of the spring and arranged to receive de-
10 pending lugs 11^a of the fulcrum pin, as clearly indicated in Figs. 5 and 6.

In practice, when the heat is sufficient to heat the solder which holds the link and plug together, the tension of the spring 8, which
15 is always acting to thrust the plug laterally, forcibly withdraws such plug from the link or socket, and after such movement of the spring and plug, the lower inner end of the spring will be moved sufficiently to take
20 up all the slack or clearance in the hole or opening 8^a, whereupon such spring upon further movement, will bear against the pin 9 of the valve and thereby pry such valve from its seat, all of the parts being disassembled
25 and thrown considerable distances away from the sprinkler head proper by the forcible action of the spring 8. The purpose of having the slack space or clearance between the valve pin and the hole in the spring is to
30 enable the spring and its plug to acquire some velocity or momentum before the prying movement on the valve, it being understood that the weight of the plug is considerable as compared with the entire weight of
35 the spring and plug.

In previous sprinkler heads the valve was held to its seat by struts or similar devices, which had no effect or action upon the valve itself except to remove the tension therefrom
40 by which they were held to their seats, leaving the valves to be removed by the water pressure. In the present instance, as will now be understood, the strut device not only serves to hold the valve upon its seat, but
45 also to forcibly remove it therefrom, with the result that the water pressure is not relied upon to remove the valve and thereby open the water passage.

As is well known, the valve of a sprinkler head, and in fact sometimes the entire head itself, is coated with wax or the like, especially where the heads are to be used in places or localities where they will be subjected to corrosive action of the air, as in paper mills,
55 where the acid fumes attack the sprinkler heads and tend to impair or destroy their efficiency. When the sprinkler heads are thus coated with wax, such wax is liable to melt under ordinary conditions, and thus
60 expose the sprinkler head to such corrosive action of the air. One of the most vulnerable points of sprinkler heads, so far as corrosive action is concerned, is the valve and valve seat, and to always insure a supply of
65 wax at this point I so arrange and construct

the head proper and the water valve that such valve seats directly upon the head and projects slightly thereabove, so as to form a circular angle therewith, with the result that
70 a ring of wax, even though melted, is at all times retained in the corner or angle between the valve and sprinkler head, such wax being retained, when melted, by capillary attraction. By this arrangement and construction a supply of wax is maintained at all
75 times immediately adjacent the valve and head proper, so that the corrosive action of the air cannot affect the sprinkler head at this point.

I claim:

1. The combination of a valve of a sprinkler head for fire extinguisher systems, and a strut device normally holding such valve closed under spring tension but connected therewith to mechanically force the same laterally from its seat when the sprinkler spring is released and the head is operated. 80
2. The combination of a valve of a sprinkler head for fire extinguisher systems, and a strut device normally holding such valve closed and having a spring member normally held under tension by a fusible solder connection, said spring member being mechanically connected with the valve to force the same laterally off its seat when the solder is fused. 85
3. The combination of a valve of a sprinkler head for fire extinguisher systems, said valve having a pin or projection, and a strut device having a spring member normally pressing against the valve to close it but adapted to engage the pin and move it laterally when the head is operated and thereby force the valve from its seat independently of the air or water pressure. 90
4. The combination of a valve of a sprinkler head for fire extinguisher systems, and a strut device cooperating with the valve and comprising, in connection with the yoke of a sprinkler head, a spring member bearing at one end against the valve, a plug connected with the other end thereof and a sleeve or link connected with the yoke and arranged to receive the plug, said link and plug being normally held together by fusible solder. 95
5. The combination of a valve of a sprinkler head for fire extinguisher systems, and a strut device cooperating with the valve and comprising, in connection with the yoke of a sprinkler head, a spring member bearing at one end against the valve, a plug connected with the other end thereof and a sleeve or link arranged to receive the plug and to normally hold the latter by means of fusible solder, said yoke having an opening arranged to engage the link at a few points only to provide air circulation therebetween. 100
6. The combination of a valve of a sprinkler head for fire extinguisher systems, and a strut device cooperating with the valve and 105

comprising, in connection with the yoke of a sprinkler head, a spring member bearing at one end against the valve, a plug connected with the other end thereof, said plug being
5 hollow for air circulation, and a sleeve or link connected with the yoke and arranged to be connected with the plug by fusible solder.

7. The combination of a valve of a sprinkler head for fire extinguisher systems, and a
10 strut device cooperating with the valve and comprising, in connection with the yoke of a sprinkler head, a spring member bearing at one end against the valve, and having its
15 other end bifurcated, a plug engaged by the bifurcated end of the spring member and means for holding the plug connected with the yoke by means of fusible solder.

8. The combination of a valve of a sprinkler head for fire extinguisher systems, said
20 valve having a projecting pin, and a strut device having a spring member provided at one end with an opening to receive the valve pin and having at its other end a fusible
25 solder connection with the head, said spring operating when released by the melting of the solder to exert a sudden lateral jerk upon the pin.

9. The combination of a valve of a sprinkler head for fire extinguisher systems, said
30 valve having a projecting pin, and a strut device having a spring member provided at one end with an elongated opening to afford play between the pin and spring member and
35 having at its other end a fusible solder connection with the head, said spring operating when released by the melting of the solder to exert a sudden lateral jerk upon the pin.

10. The combination of a valve of a sprinkler head for fire extinguisher systems, said
40 valve having a projecting pin, and a strut device having a spring member provided at one end with an opening to receive the valve pin, a plug to which the member is connect-

ed, and a hollow link receiving the plug and connected thereto by fusible solder. 45

11. The combination of a valve of a sprinkler head for fire extinguisher systems, said valve having a projecting pin, and a strut device having a spring member provided at one end with an opening to receive the valve
50 pin and at its other end provided with a fusible solder connection with the sprinkler head, and a strut arm arranged between the spring member and head.

12. The combination of a valve of a sprinkler head for fire extinguisher systems, said
55 valve having a projecting pin, and a strut device having a spring member provided at one end with an opening to receive the valve pin and at its other end provided with a fusible solder connection with the sprinkler head, said spring member having opposite
60 recesses, and a strut arm arranged between said head and member and having lugs fitting in said recesses. 65

13. A sprinkler head comprising a yoke, a deflector arranged therewithin, a valve, and a strut device comprising a spring member at one end pressing upon the valve and at its
70 other end having a fusible solder connection with the yoke, and a strut arm arranged between the spring member and deflector.

14. A sprinkler head comprising a yoke having an upward extension provided with an opening, a valve, and a strut device com-
75 prising a spring member at one end pressing upon the valve, a plug with which the other end of the spring member is connected, and a hollow link fitting and anchored in said yoke opening and connected with the plug by
80 fusible solder.

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Witnesses:

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