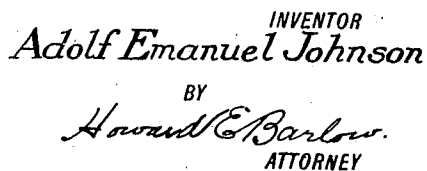


Patented May 23, 1911.



UNITED STATES PATENT OFFICE.

ADOLF EMANUEL JOHNSON, OF PROVIDENCE, RHODE ISLAND.

AUTOMATIC FIRE-EXTINGUISHER.

993,071.

Specification of Letters Patent. Patented May 23, 1911.

Application filed June 2, 1908. Serial No. 436,208.

To all whom it may concern:

Be it known that I, ADOLF E. JOHNSON, a citizen of the United States, residing at the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Automatic Fire-Extinguishers, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to sprinkler heads and has for its object in addition to the usual requirements of such devices, which is that of automatically extinguishing incipient fires, to provide an exceedingly sensitive fusible blade or strut adapted to normally retain the valve in closed position against a pressure and to positively fuse and separate and allow said valve to open when the same is subjected to heat of a predetermined degree.

In the ordinary sprinkler head when the same has been operated either inadvertently or by the action of heat, it is necessary to send for a skilled mechanic to remove the whole head and replace it with a new one, but by the use of my improved device if for any reason the strut should become displaced or destroyed, an ordinary person can readily replace the valve on its seat, place one end of the strut in position over the same and the opposite end under the yoke and the head is again in perfect operative condition.

One essential feature of my improved strut is that the same is constructed of a two part metal blade having an angular fusible joint and a retaining lug or key in said joint to take the strain and prevent the parts from slipping until actually fused.

Still another feature of the strut is that the upper end of the same is formed in a cam-shape and adapted to be pressed under the yoke with a wedging action whereby the valve is forced tightly and retained firmly to its seat.

With these objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1— is a side elevation of the device partly in section. Fig. 2— is a top or plan view of the device with the yoke in section, on line 2—2 of Fig. 1. Fig. 3— is a detail perspective

view of the strut or blade. Fig. 4— is a detail in section of the cap which fits over the top of the valve. Fig. 5— is a detail of the semi-spherical valve. Fig. 6— is a detail illustrating the two members of the strut separated. Fig. 7— is a small section of the yoke showing the notch for receiving the upper edge of the strut.

Referring to the drawings 1 is the body portion of the sprinkler which is provided with a threaded hub or projection 2 adapted to be screwed into the outlets in the sprinkler pipe.

A thin disk or plate 3 is provided with a central opening 4, the edge of said opening being turned upward as at 5 forming an annular lip or flange around the same providing a seat for the valve 6. This thin plate is for the purpose of forming a resilient seat for the valve and is held in position in the body portion by means of the ring 7, which ring is threaded on its outer surface and adapted to be screwed into said body to bind said seat securely in position therein. Arms 8—8 extend upward from said ring 7 forming a yoke to receive the upper end of the strut and retain the valve in position. A cap 9 corrugated around its edge is secured to the upper end of this yoke, for the purpose of spreading the water when issuing through the valve opening. The under edge 10 of this yoke (see Figs. 2 and 7) is provided with a slot 11 set on a slight angle to the plane of the arms, into which slot the strut is adapted to fit. It is found in practice that by placing this strut on a slight angle to the plane of the arms the edges are carried back out of the way so as to be less liable to be accidentally hit and displaced. This strut 12, which is the essential feature of my device, is constructed of a thin plate or blade divided diagonally or on an angle to its axis on the line 13, and is connected together at that point by fusible metal. In order to prevent one part from slipping on the other a boss or key 14 has been provided on one of said parts which is adapted to fit into a corresponding groove or recess 15 on the opposite part. The lower end of this strut is notched out as at 16 forming a little projection 17, see Fig. 3, which is adapted to fit into a corresponding recess 18 in the valve cap 19. The upper edge of this strut is rounded off at 20 forming sort of a cam which has a wedging effect or action to fa-

cilitate the entering of said strut into the slot 11 on the underside of the yoke, whereby as the blade is pressed under the yoke it forces the valve down tightly onto its seat.

5 The notch or lip 21 forms a limit or stop for the blade in one direction and a screw 22 is set into the threaded hole 23 in the blade to prevent the blade from accidentally withdrawing when in position thus also forming
10 a stop in this direction, securely locking the strut in position.

The operation of this device may be more fully described as follows: In practice I preferably provide a spring seat 3 which is
15 secured into the body portion by means of the threaded ring. The turning up of the center flange in this blade forms a very convenient seat against which the valve 6 may rest to form a tight joint against the pressure within the sprinkler pipe. This valve
20 may be formed of glass, porcelain, mica, or any other suitable material, and is preferably made hemi-spherical on its lower edge and flat on its upper portion over
25 which latter portion the retaining cap 19 is adapted to fit. The strut, which is provided with a small extension 17, is adapted to fit into the recess in the cap made to receive it, and then on account of the wedging or cam-shaped upper edge may be
30 pressed into the slot 11 on the underside of the yoke to force the valve securely to its seat where it will hold the same tight against any amount of internal pressure. By inserting the screw 22 after the blade is placed in
35 position the whole is securely locked together. It is found in practice that in these sprinkler heads on account of defective workmanship and by the application of excessive heat thereto, as well as from other causes, the strut becomes displaced, separated, or is otherwise removed from the head, in which case with my improved device it is only necessary to turn off the pressure from the pipe, replace the valve, and by
45 forcing another strut into position under the yoke the head is completely restored to its original effectiveness without the aid of a skilled mechanic and without the necessity of replacing the whole device.

50 The device is very simple and inexpensive to construct and on account of the thinness of the blade the fusing material will allow the strut to separate almost instantly when the temperature is raised to a predetermined degree, which is found to be in practice a

great advantage in stopping a fire before it has gained too great a headway.

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

1. An automatic sprinkler comprising a body portion, a yoke secured thereto, a valve, and a strut interposed between said yoke and valve, said strut being formed of two
65 members having abutting diagonally arranged ends constructed to be united by fusible metal, said ends being provided with means to assist the fusible metal in taking up the strain, the upper member being provided with a cam edge engaging said
70 yoke.

2. An automatic sprinkler comprising a body portion, a yoke secured thereto, a valve, a strut interposed between said yoke and
75 valve, said strut being formed of two members having abutting diagonally arranged ends constructed to be united by fusible metal and provided with means to assist said fusible metal in taking up the strain, the upper member being provided with a
80 cam edge engaging said yoke, and means for locking said strut in position.

3. An automatic sprinkler comprising a body portion, a yoke secured thereto and
85 provided with a slot, a valve, a strut interposed between said yoke and said valve, said strut being formed of two members having abutting diagonally arranged ends constructed to be united by fusible metal and
90 provided with means to assist said fusible metal in taking up the strain, the upper member of said strut fitting within the slot of said yoke.

4. An automatic sprinkler comprising a
95 body portion, a yoke secured thereto and provided with a slot, a valve, and a strut interposed between said yoke and valve, said strut being formed of two members having abutting diagonally arranged ends constructed to be united by fusible metal and
100 provided with means to assist the fusible metal in taking up the strain, the upper member of said strut being provided with a cam edge engaging the slot of said yoke.

105 In testimony whereof I affix my signature in presence of two witnesses.

ADOLF EMANUEL JOHNSON.

Witnesses:

HOWARD E. BARLOW,
E. I. OGDEN.