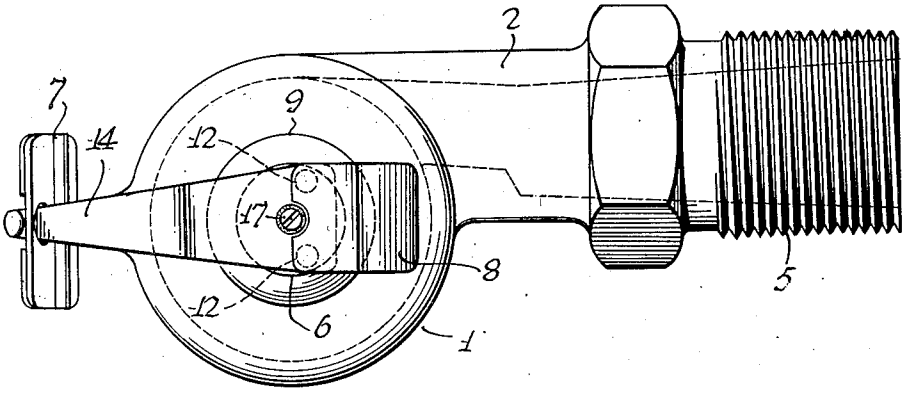
April 4, 1950 A. C. ROWLEY 2,502,755

SPRAY NOZZLE

Original Filed June 17, 1948

FIG. 2.



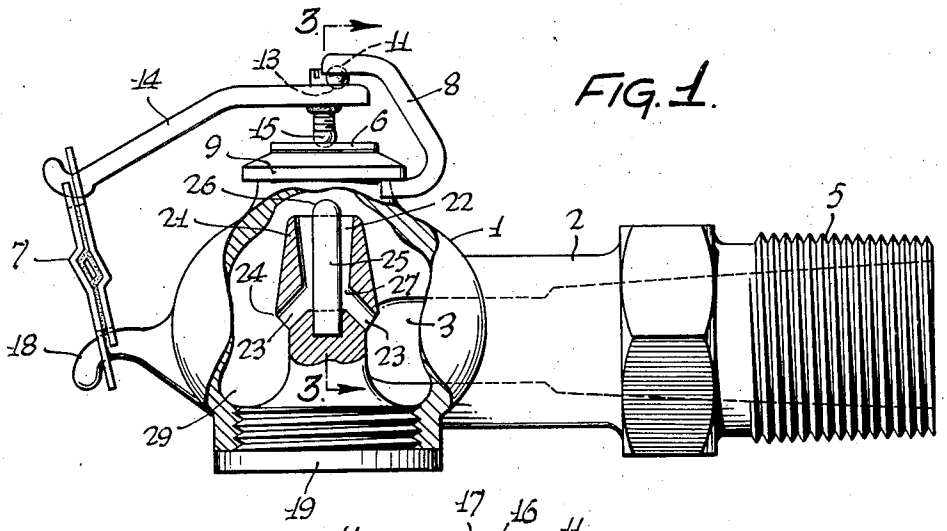


FIG. 1.

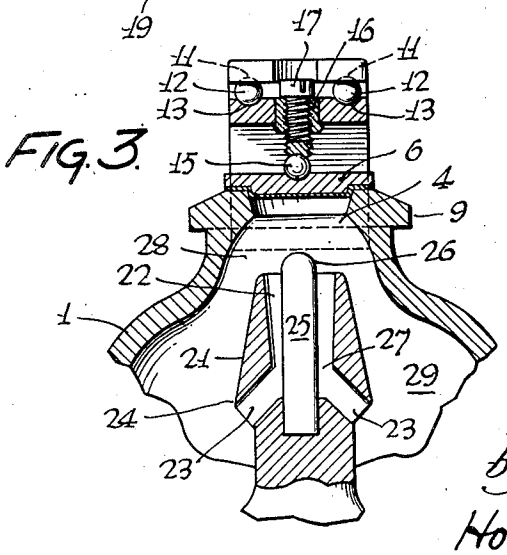


FIG. 3.

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UNITED STATES PATENT OFFICE

2,502,755

SPRAY NOZZLE

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Original application June 17, 1948, Serial No. 33,480. Divided and this application March 11, 1949, Serial No. 80,961

3 Claims. (Cl. 299—115)

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This invention relates to improvements in spray nozzles of the class used in automatic sprinkler systems, and is a division of my copending application Serial No. 33,480, filed June 17, 1948.

The primary object of the present invention is to provide a spray nozzle of relatively simple form and high functional efficiency.

In the attached drawings:

Fig. 1 is a side elevational view, partly in section, of a spray nozzle made in accordance with my invention;

Fig. 2 is a top plan view of the nozzle shown in Fig. 1; and

Fig. 3 is a sectional view on the line 3—3 of Fig. 1.

With reference to the drawings the spray nozzle comprises a hollow, generally spherical body member 1 having a tubular extension 2 through which passes a tangentially directed intake port 3. The body member 1 also has an axially directed discharge port 4. As shown in Figs. 1 and 2 the extension 2 is threaded at its outer end as indicated at 5 whereby the nozzle may be mounted in the pipe system with which it may be associated.

The discharge port 4 is normally closed by a disc-like element 6 which, in the present instance, is held in place by means of a suitable lever system and associated fusible link 7. In the present instance the lever system includes an element 8 which engages the body member 1 below a flange 9 of the latter, and which has at the other end a pair of spherical recesses 11, 11 in which are engaged a pair of spherical retaining elements 12, 12. These spheres are mounted in sockets 13, 13 in a lever arm 14, the outer free end of which is engaged with the fusible link 7 and the other end of which is supported through the medium of a spherical element 15 upon the closure disc 6. As best shown in Fig. 3 the end of lever arm 14 in which the spherical elements 12, 12 are seated contains a bushing 16 in which is threaded a set screw 17. The lower end of this screw is socketed and engages the spherical element 15. The lever system including the elements described above are held under tension by the link 7, which is anchored to an arm 18 on the body member 1 of the nozzle, and acts to forcibly retain the closure disc 6 in place until released by separation of the elements of the link 7. The closure means described above forms no immediate part of the present invention.

Threaded into the body member 1 at the opposite side of said body from the discharge opening 4 is a plug 19 and projecting from the inner end of the plug is a stem 21 which extends axially in alignment with the discharge opening and toward the latter. The stem 21 is recessed from its outer end as indicated at 22 and this recess is frusto-conical in form with the wall thereof converging toward the bottom of the recess. The recess 22 communicates at the bottom with a plurality of passages 23 which enter the sides of the stem 21 immediately below a shoulder 24 on the latter and extend diagonally inward toward the bottom of the recess 22. Extending upwardly through said recess is a cylindrical pin 25 having a rounded tip 26 which projects somewhat beyond the terminal end of the recess 22 toward the discharge opening 4. The pin is dimensioned to afford substantial clearance between the sides of the recess 22 and the side of the pin.

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When the closure element 6 is released and is dislodged from its seat on the body member 1, water or other fluid from the pipe system to which the nozzle is connected enters the interior of the body 1 through the tangentially directed port 3 so that the entering water is given a whirling motion within the chamber 29 of the body member and around the stem 21. The main part of this whirling mass moves axially toward the discharge opening 4, but a part of the water entering the ports 23 flows to the relatively restricted inner end of the passage 22 and through the latter to be projected at high velocity toward the discharge opening 4. This jet meets the whirling body of water passing to the discharge port around the stem 21 and effects a breaking up of the entire mass of water so that the latter is projected from the port 4 in the form of a highly uniform spray.

It is to be noted that by reason of the restriction of the passage 22—23 through the stem 21, as indicated by the reference numeral 27, and the restriction 28 between the chamber 29 and the discharge port 4, a multiple Venturi action is obtained which materially increases the velocity of water at the points indicated and which aids in breaking up of the water mass into the spray which passes from the nozzle.

I claim:

1. In a spray nozzle, a hollow head member having a substantially spherical chamber with a tangentially directed intake port and an axially directed discharge port, a stem projecting diametrically from the side of the chamber opposite the discharge port and toward the latter,

said stem having a coned recess in the outer end thereof and a plurality of passages at the sides terminating in the inner relatively restricted inner end of said recess, and a pin mounted in and extending longitudinally and centrally through said recess from the inner end of the latter.

2. A spray nozzle according to claim 1 wherein the stem is provided on its outer surface with a circumferential shoulder and wherein the said passages extend inwardly to said recess from the side of said shoulder remote from the discharge port.

3. A spray nozzle according to claim 1 wherein the said stem forms with the wall of the head

member a restricted passage between the said chamber and the discharge port.

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