

(No Model.)

G. A. SMITH.

AUTOMATIC WATER SPRINKLER OR PIPE.

No. 285,697.

Patented Sept. 25, 1883.

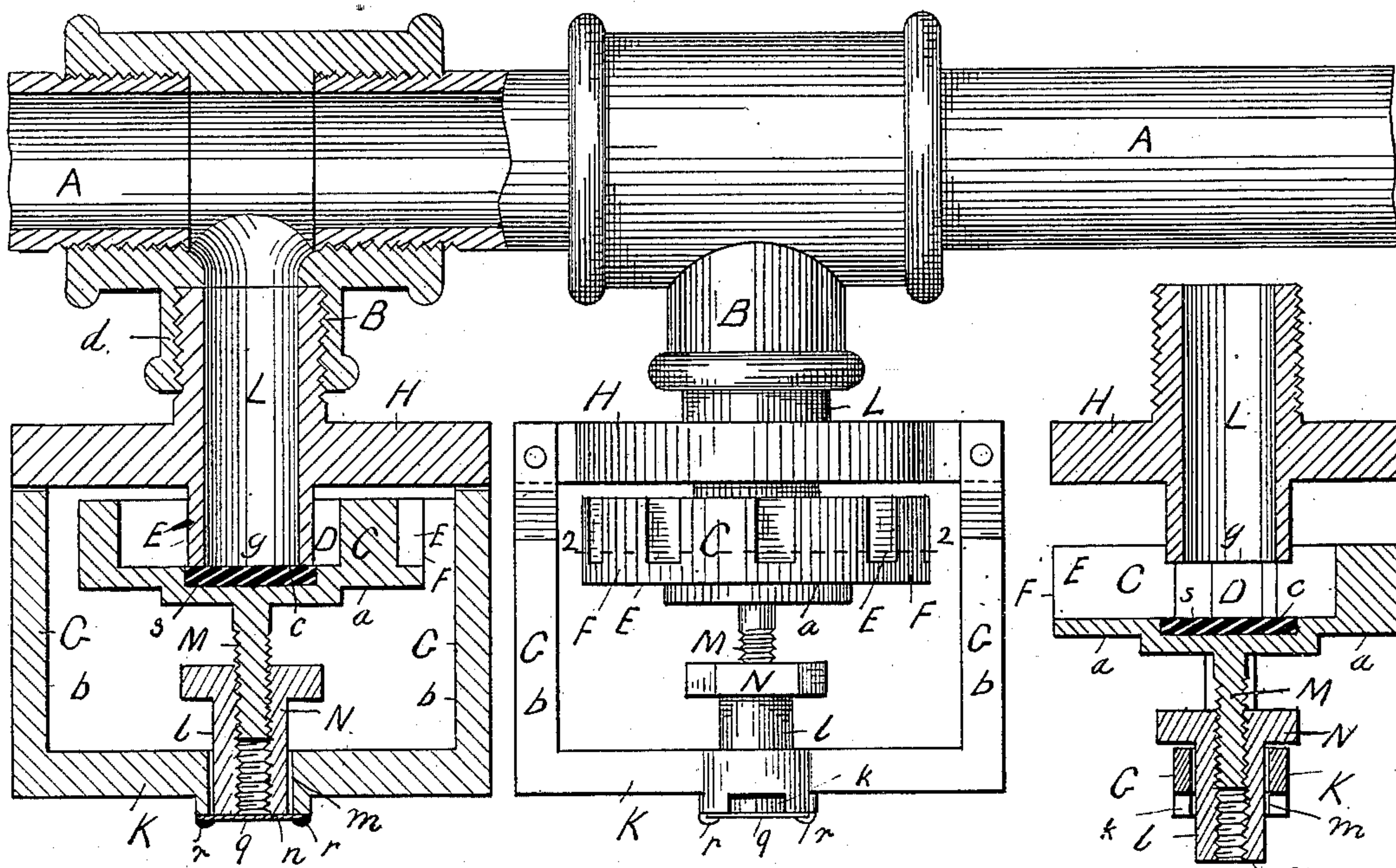


Fig.3.

Fig:1.

Fig:4.

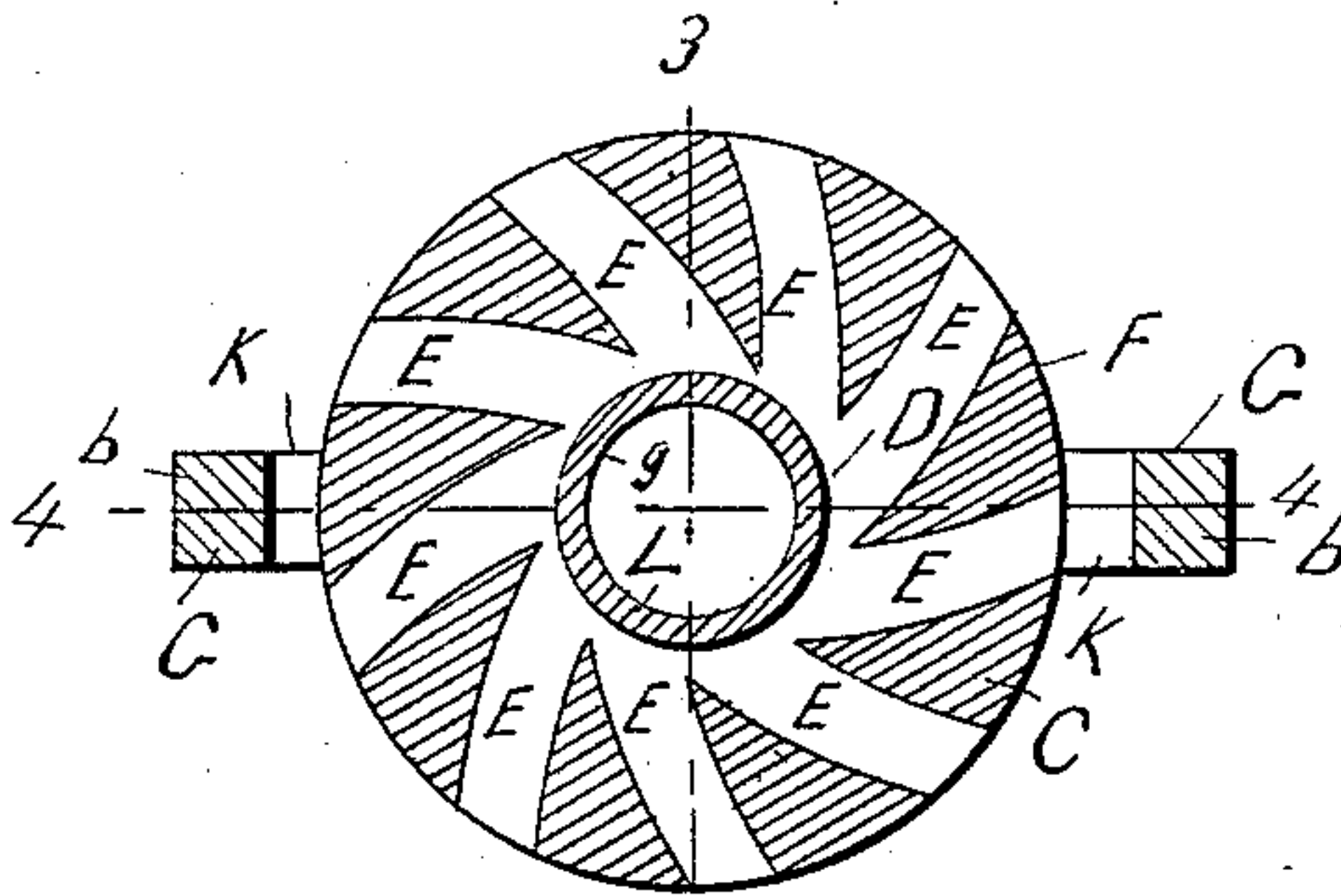


Fig: 2³

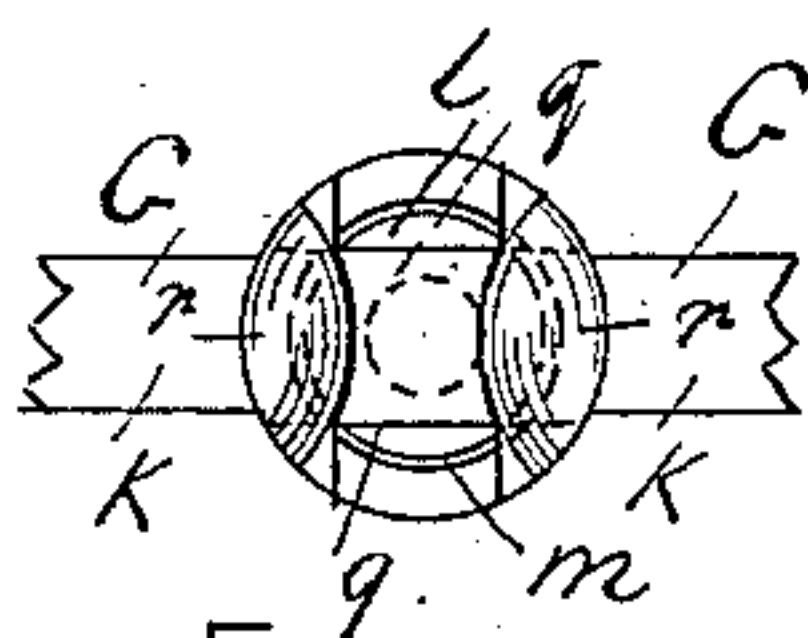


Fig. 5.

Witnesses:

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GEORGE A. SMITH, OF BRISTOL, RHODE ISLAND.

AUTOMATIC WATER SPRINKLER OR PIPE.

SPECIFICATION forming part of Letters Patent No. 285,697, dated September 25, 1883.

Application filed March 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. SMITH, of Bristol, in the county of Bristol and State of Rhode Island, have invented certain new and useful Improvements in Automatic Water Sprinklers or Pipes, of which the following is a full, clear, and exact description.

This invention relates to watersprinklers or pipes to be arranged in the several compartments of manufactories, particularly of cotton, woolen, and paper manufactories, and other buildings—such as theaters, and more particularly the stage portions thereof—in which fire and highly-inflammable materials are present.

This invention is more particularly applicable to such sprinklers or pipes as are arranged to be automatically opened to the escape and sprinkling of water by and from the fusion of a metal or material fusible at a low degree of heat—say 160° —which is applied to maintain the sprinklers or pipes against the escape of water until such fusion of the fusible metal or material occurs.

The invention consists in a novel application of said fusible metal or material, and in a construction and arrangement of parts for closing the sprinkler or pipe to the escape of water and so maintaining it until the fusion or melting of the fusible metal or material occurs, all substantially as hereinafter described.

In the accompanying plate of drawings, automatic and rotary sprinklers having my present improvements applied to them are illustrated.

Figure 1 is a side elevation with the sprinkler closed against action; Fig. 2, a horizontal section on line 2 2, Fig. 1; Fig. 3, a vertical section on line 4 4, Fig. 2; and Fig. 4, a vertical section on line 3 3, Fig. 2, with the sprinkler open to action. Fig. 5 is a detail plan view, showing the fusible metal and its attachment.

In the drawings, A represents a pipe connected in any suitable manner to the water-supply, and tapped, as at B, for the attachment of an automatic and rotary sprinkler, to be now described.

The sprinkler consists of a horizontal wheel or plate, C, having a central chamber or recess, D, from which lead a series of horizontal and more or less radial and spiral passages, E, to the periphery F of the wheel. Said pas-

sages are open at said periphery F, and at said central chamber, D, and said passages along their length open to the upper face, but are closed at the under side or part, *a*, of the wheel, all as usual. The wheel is carried in a stirrup-shaped frame, G, which is composed of an upper circular plate or disk, H, and of a lower horizontal bar, K, parallel to the plate H, and of two parallel upright bars, *b b*, diametrically opposite each other. The stirrup-frame has attached to its plate H a vertical pipe, L, which is screwed and entered into the supply-pipe A at *d*, thereby fastening said stirrup-frame to said pipe A. Said vertical pipe L communicates with the supply-pipe A, and it projects below the plate H into the central recess, D, of the wheel or plate C. Against the lower and open end *g* of the pipe L is abutted the bottom face, *c*, of said recess, so as to close said open end *g* to the passage of water, the wheel or plate thus acting as a valve to the pipe L. For producing and maintaining this abutment of the wheel or valve C against the open end *g* of the pipe L, said wheel has a vertical screw-threaded spindle, M, attached to and projected from its under side, upon which screws a horizontal screw-threaded nut, N, having a vertical tubular and cylindrical under extension, *l*, that enters a socket, *m*, in the lower bar, K, of the stirrup-frame G, and rests at its lower end *n* against a cross-piece, *q*, located and secured across the groove *k* of the bar, leaving said groove open at each end for the free passage of air onto it. The securing of the cross-piece *q* in place is made with a metal or material shown at *r*, which is fusible at a low degree of heat—say 160° —but otherwise is capable of holding the cross-piece against escape. The fusible metal or other material, *r*, is applied to the outside of the cross-piece *q* and bar K at and along the line of the joint of said cross-piece with said bar. This outside application of the fusible metal or other material obviously places it in the most advantageous position to be affected directly by the heat.

With the cross-piece *q* secured in place, as above described, by the turn of the screw-nut N in the proper direction—it freely turning in the socket of the stirrup-bar K—it is plain the wheel or valve C may be abutted firmly against the lower open end *g* of the vertical

pipe L, and thus the pipe will be closed to the passage of water. When the cross-piece *q* is released by the melting of the fusible metal or other material, *r*, from heat, the wheel or valve
 5 C is then left free to drop from the lower open end of the vertical pipe, opening it to the escape of water, which water, entering the central recess, D, passes therefrom through the more or less radial and spiral passages E, and
 10 escapes at the periphery of the wheel in a corresponding number of separate streams. This movement of the water, as is obvious, causes the wheel to rotate, turning by its tubular extension *l* of the screw-nut in the socket *m* of
 15 the stirrup-bar K, and as a consequence the water is the better distributed and spread around the room or place in which the sprinkler is located.

To insure a tight joint between the wheel
 20 or valve C and the open end *g* of pipe L, a packing-washer, *s*, of india-rubber, leather, metal, or other similar material, may be employed. The construction of the wheel with screw-stem M, receiving the screw-nut turning
 25 within the stirrup-bar, enables the joint between the wheel or valve C and open end *g* of pipe L to be made tight at any and all times by properly turning either the screw-nut N or the wheel or valve C.

30 In lieu of a wheel or valve with water-passages E, a wheel or valve-plate, either with or without a central recess or cavity, or without passages, may be used to abut against the open end of the pipe, so that when it is dropped
 35 from the pipe the pipe is simply opened to the escape of water, and on its escape no distribution or spread of the water produced, as has been described, but a simple flow of the water over the upper surface of the valve or wheel
 40 secured.

The automatic sprinklers such as above described are to be located on the water-pipe,

as near together as desired. It is plain there is, in fact, no destruction of any part of the apparatus on the melting of the fusible metal
 45 or other material, as has been described.

By having the groove *k* and the seat opened, as described, greater facility is given for the circulation of air about the supporting cross-piece *q* for the valve or plate C.
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The frame G need only be on one side; but it is preferable to have it as shown.

The cross-piece *q* may be made of the fusible material.

Having thus described my invention, what I
 55 claim, and desire to secure by Letters Patent, is—

1. The combination of a water-pipe having a valve-seat, the valve-plate C, provided with radial passages, the supporting-frame G, the
 60 cross-piece *q*, adapted to be held to the frame by fusible metal, and means for supporting the valve on the cross-piece, and thereby holding said valve against the valve-seat on the water-pipe, substantially as described.
 65

2. In combination with a water-pipe, a valve-plate, C, having screw-stem M and screw-nut N, with its tubular extension L, and a cross-piece, *q*, secured to the supporting-frame G by a fusible material, substantially as and for
 70 the purpose described.

3. In combination with a water-pipe, a valve-plate, C, having radial passages, screw-stem M, and nut N, with its tubular extension L, and a cross-piece, *q*, secured to the supporting-frame G by a fusible material, substantially as and for the purpose described.
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In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEO. A. SMITH.

Witnesses:

EDWIN W. BROWN,
 WM. S. BELLWS.