

No. 700,218.

Patented May 20, 1902.

H. C. MONTGOMERY.  
AUTOMATIC FIRE EXTINGUISHER.

(Application filed Feb. 27, 1901. Renewed Mar. 12, 1902.)

(No Model.)

FIG. 1

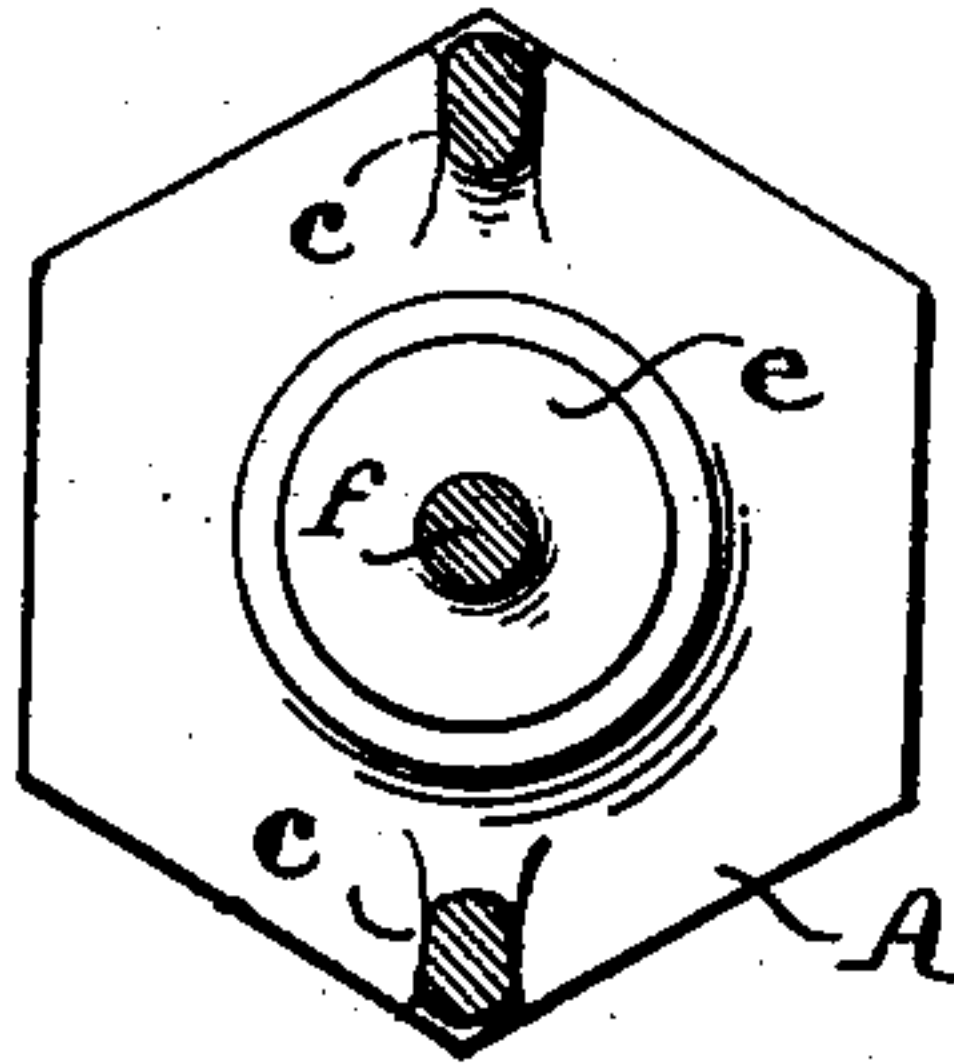


FIG. 2

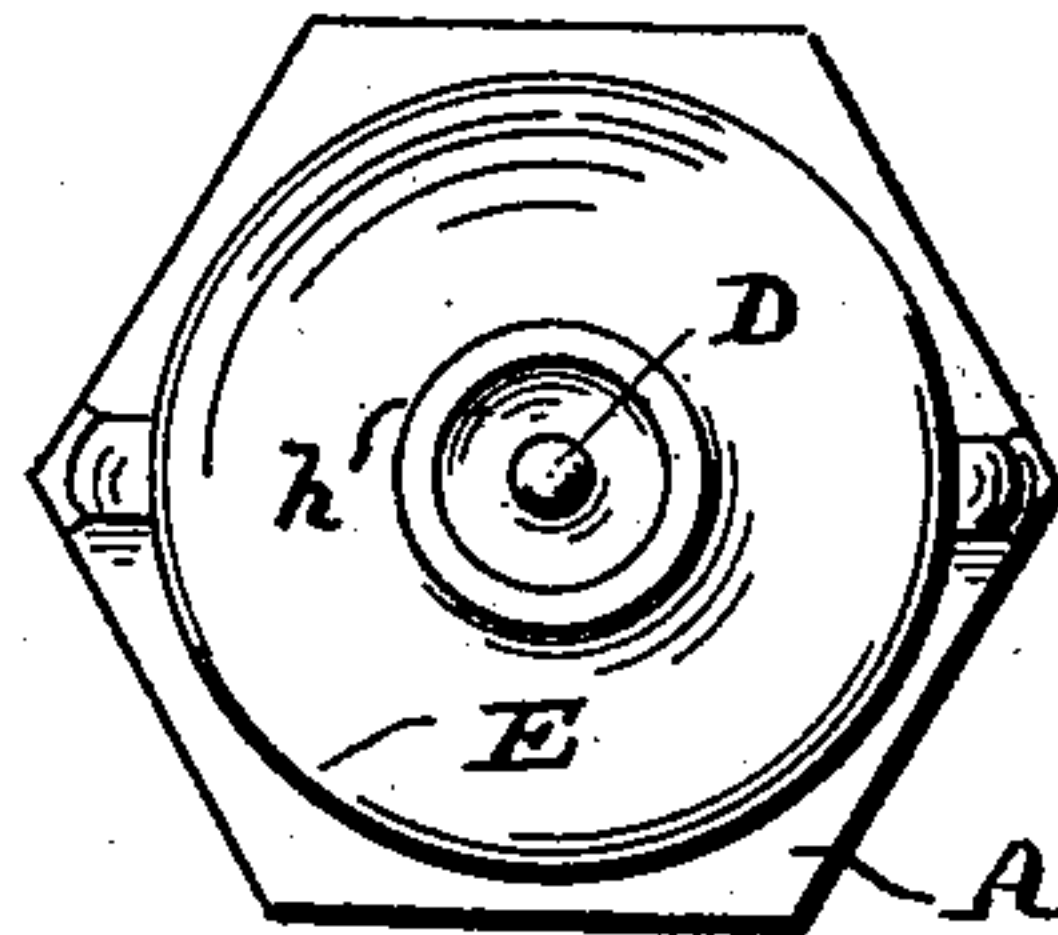


FIG. 3

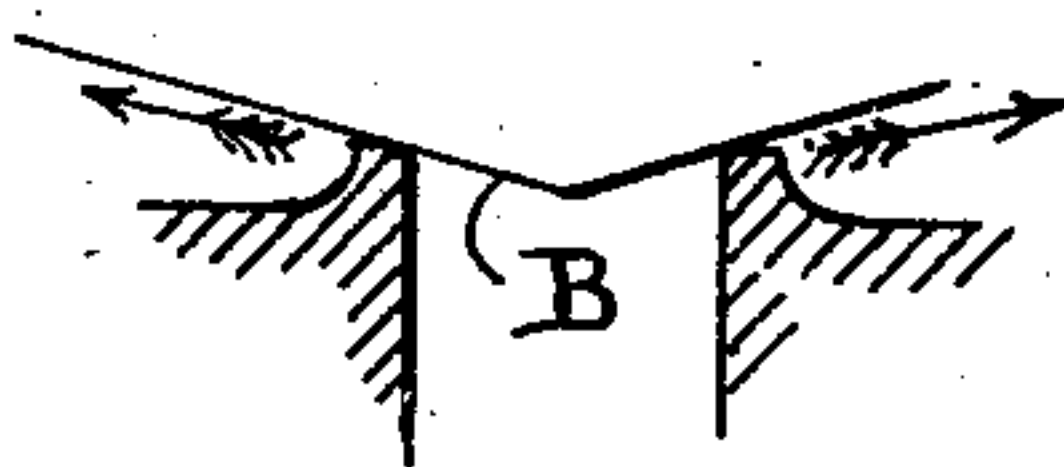
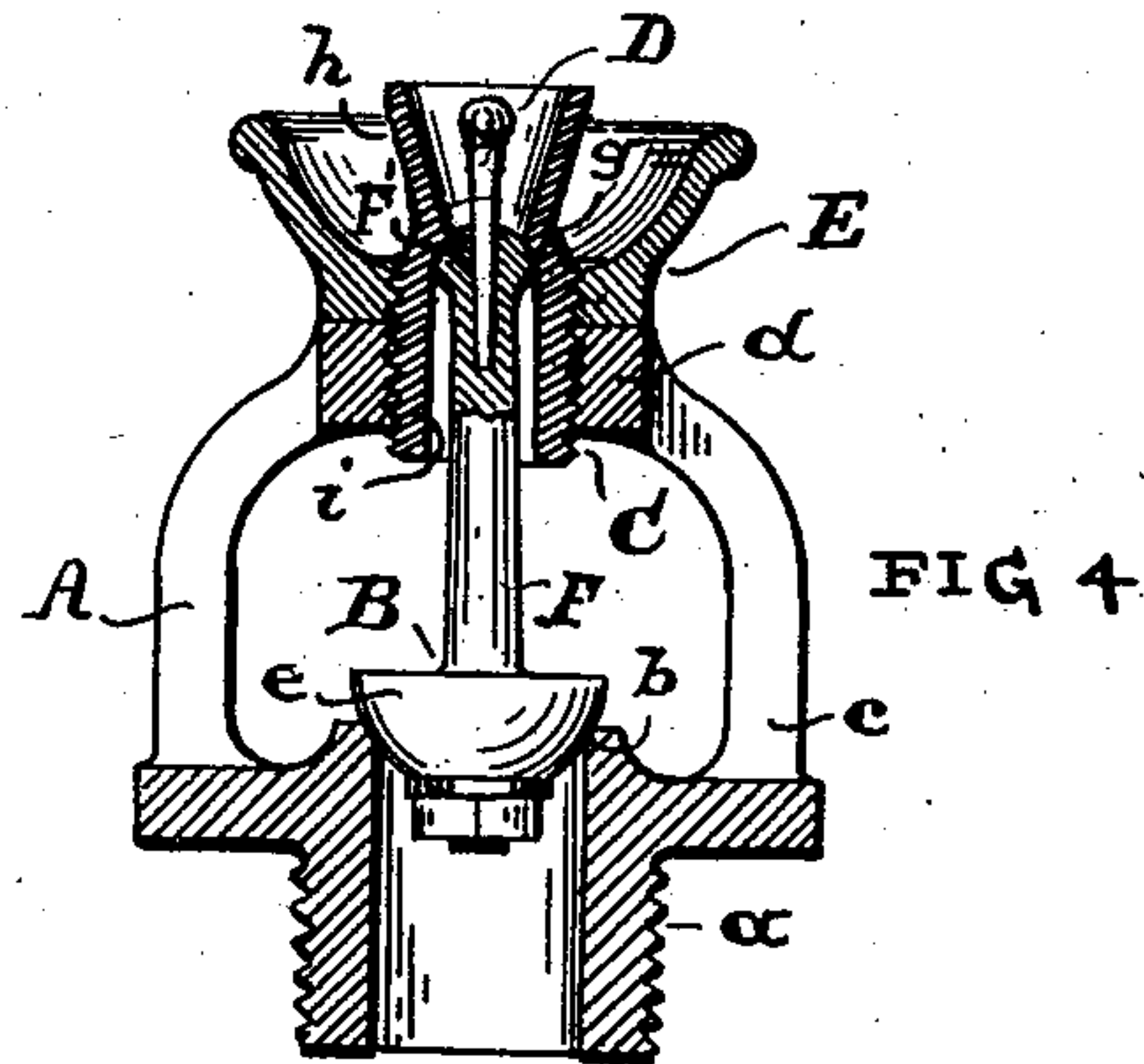
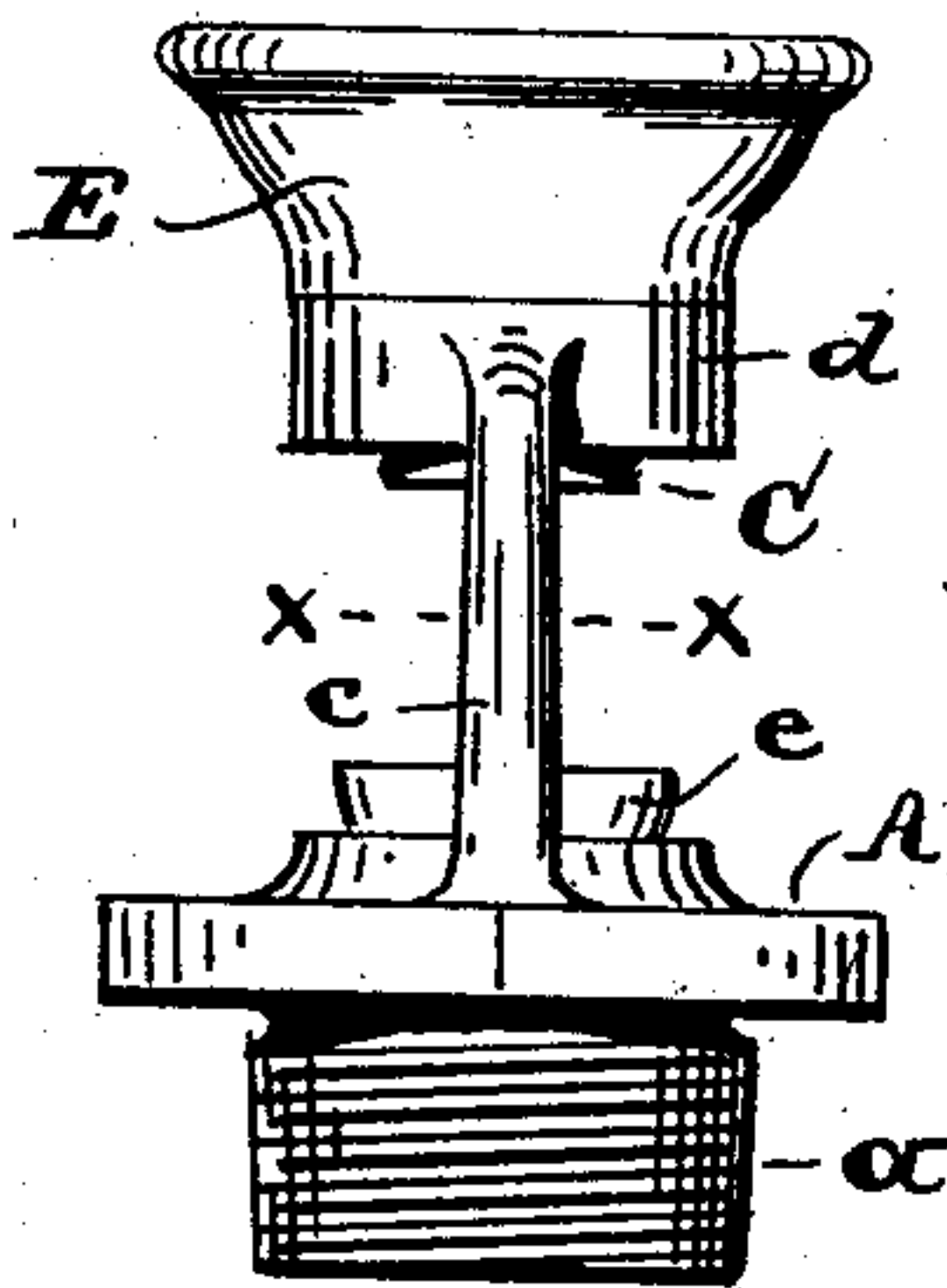


FIG. 5

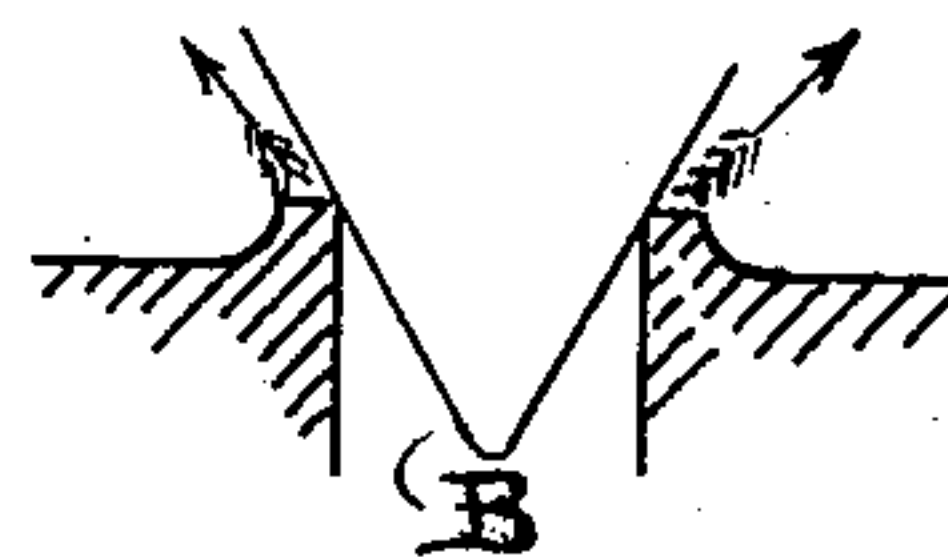


FIG. 6

WITNESSES  
James Mathers  
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# UNITED STATES PATENT OFFICE.

HARRY C. MONTGOMERY, OF CLEVELAND, OHIO, ASSIGNOR TO SAMUEL W. PARSONS, OF CLEVELAND, OHIO.

## AUTOMATIC FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 700,218, dated May 20, 1902.

Application filed February 27, 1901. Renewed March 12, 1902. Serial No. 97,858. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY C. MONTGOMERY, a citizen of the United States of America, and a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Automatic Fire-Extinguishers, of which the following is a specification.

My invention relates to improvements in automatic fire-extinguishers of the class in which inflammable material is employed for the purpose of retaining such contrivances in inert condition; and the object of my improvement is to provide reliable and highly-susceptible elements with regard to heat and fire as a means to cause the release (operation) of such extinguishers. I attain this object in a contrivance constructed and equipped substantially as illustrated in the accompanying drawings, in which—

Figure 1 represents a horizontal sectional view of said contrivance on line *x x*. (See Fig. 3.) Fig. 2 is a plan view. Fig. 3 is a side view of said sprinkler. Fig. 4 is a central sectional view of the same, and Figs. 5 and 6 are diagrammatic illustrations herein-after referred to.

Like letters of reference denote like parts in the drawings and specification.

Substantially the contrivance comprises the frame A, the valve B, the plug C, and initial igniter D, (most clearly seen in Fig. 4.) The frame A is adapted for connection with the pipe-lines which supply the fire-extinguishing medium, (water.) Furthermore, it contains the valve-seat and affords opportunity for locking the valve onto its seat by the intervention of said plug. As shown, a threaded nipple *a* is provided for securing the frame into the water-supply pipes. The valve-seat *b* is formed in the base of said frame, while the arms *c c* support the collar *d* distant from and centrally above the valve-seat *b*. Internally said collar is threaded for reception of the plug C, above referred to. (See Figs. 3 and 4.) While a spherical form is shown for the head *e* of the valve B, other forms may be selected for said head. (See Figs. 5 and 6.) The stem F of the valve loosely fits the bore of said plug C. An enlargement F' upon said stem and a contraction *g* in the plug, how-

ever, afford a means of resistance for locking the valve-head upon its seat *b* upon screwing the plug into the collar *d*. The outer shell *h* of the plug is preferably flaring, as seen in Fig. 4. As the connection between the collar *d* and the plug C is a screw-threaded one, it will be readily understood that the plug is removably mounted within the collar, and as said plug extends entirely through the collar the valve-stem will be positioned solely by the plug. This construction is of particular advantage in that there is no requirement of the soldering of the parts, such as is usual in devices of this character, with the consequent necessity of the use of a number of tools in making the connection, in addition to the requirement of a nicety of adjustment of the parts. By the use of the plug, screw-threaded, as shown, it is necessary only to rotate it until the valve is firmly seated, and if at any time changes are to be made it can be readily unscrewed. As the outer or flaring end of the plug is substantially thin, it will be destroyed quickly, and as soon as a sufficient portion thereof burns to destroy the contraction *g* the valve may be moved from its seat by the pressure of the liquid, the valve-stem passing through the rear portion of the plug. Should there be a tendency of the valve-stem to stick, (substantially impossible,) the continued destroying of the plug will quickly relieve this, as the valve-stem is of a greatly-reduced diameter from that of the screw-threaded portion of the collar. The cup-shaped member E serves as a safety appliance for the screw-threaded part of the plug, as well as for its flaring part *h*—namely, the nut part of member E enables secure adjustment of the plug and valve in relation to the valve-seat, and the cup part thereof protects the part *h* in the manner and for the purpose as presently described.

The plug proper consists of a material subject to destruction by the action of heat or fire. Within the flaring terminal of said plug is arranged an element D, possessing still higher susceptibility to the action of heat or fire. Virtually said element serves in the capacity of an initial igniting medium for the plug or, in particular, the flaring part thereof. To withstand the pressure exerted upon the



valve, said plug must of necessity combine reasonable strength with a reasonable adaptability for ready destruction to answer the requirements. A comparatively strong structure, however, as a matter of fact, cannot have the desirable quality of being immediately set ablaze when a conflagration is just starting. For this reason I employ a supplementary medium for the destruction (burning) of the upper plug-terminal, which element may be ever so fragile in structure, since it has not strain to bear. For the preparation of this internally-arranged initial igniting medium I am enabled to employ any material noted for having a low ignition-point.

A fire-extinguishing contrivance thus equipped will readily and reliably answer the purpose for which it is intended, since a low degree of heat is sufficient to start the initial igniting medium, which momentarily creates a flame and a higher degree of heat, and thereby starts the plug to burn, which in turn releases the valve, whereupon water will spurt out through the valve-seat.

Simply to guard against the possibility of the water from striking the plug ere the same is sufficiently burned off or destroyed to admit of a full opening (or release) of the valve the cup *h* is provided upon member E, which surrounds the shell of the plug. Thus said plug cannot be reached by water before the valve is released completely. Furthermore, for the plug I select combustible (inflammable) material, upon which exposure to deteriorative surroundings has no effect. Therefore such contrivances can be relied upon for their behalf in the manner as intended—namely, to furnish a quick and abundant water-supply in the event of a conflagration within premises where such fire-extinguishers are located. Finally, it may be stated that according to the shape of the valve-head the water may be directed to outpour in a course which best suits surroundings. (Note arrows in Figs. 5 and 6.)

What I claim, and desire to secure by Letters Patent, is—

1. A fire-extinguisher nozzle comprising a frame having a collar, a combustible plug having a screw-threaded connection with and extending through said collar, and a valve held in position on its seat by said plug and otherwise unimpeded in its opening movement in any direction.

2. A fire-extinguisher nozzle comprising a frame having a collar, a combustible plug removably mounted within said collar said plug extending through said collar, and a valve having a portion of its stem passing into said plug and normally positioned thereby.

3. A fire-extinguisher nozzle comprising a frame having a collar, a combustible plug removably mounted within and extending through said collar, said plug having a constricted passage-way therethrough, and a valve having a stem the outer end of which

is enlarged and normally rests against the constricted portion of said passage-way, whereby said valve will be held to its seat and be positioned by said plug.

4. A fire-extinguisher nozzle comprising a frame, a combustible plug removably mounted therein, said plug having a flared outer end, and an independent igniter within said flared end.

5. In a fire-extinguisher nozzle, the combination with a valve-seat and frame, of a combustible plug carried by the frame, a valve held in position on said seat by said plug and otherwise unimpeded in its opening movement in any direction, and an initial igniter protected solely by said plug.

6. In a fire-extinguisher nozzle, a valve and valve-stem, a combustible valve-positioning device, and an igniter carried by said stem.

7. In a fire-extinguisher nozzle, a valve and stem, a combustible valve-positioning device having a central opening to receive the end of the valve-stem, and an igniter carried by said stem and extending through the said opening.

8. In a fire-extinguisher nozzle, the combination with a frame and a valve, of a combustible valve-positioning plug carried by the frame and having a central opening, the forward portion of which is flared, and an igniter located within the flared portion.

9. In a fire-extinguisher nozzle, the combination with a valve-seat and frame, of a combustible plug carried by the frame, and a valve held in position on said seat by said plug and otherwise unimpeded in its opening movement in any direction.

10. A combustible valve-positioning plug for fire-extinguisher nozzles having means for positioning the valve and having its rear portion formed with peripheral screw-threads, the forward portion being flared to afford a rapid initial combustion.

11. A fire-extinguishing contrivance comprising a frame, a valve, an inflammable plug and an independent initial igniter for said plug carried by the valve-stem, the said frame containing a port terminating in a valve-seat and being adapted for connection with water-supply pipes, and the plug being securely connected with said frame and retaining the stem of said valve to its seat, all constructed and arranged substantially in the manner as and for the purposes set forth.

12. In a fire-extinguisher the combination with the valve and supporting structure thereof of a combustible plug having connection with said structure and retaining the valve to its seat and an independent igniting medium positioned within and protected by the upper portion of said plug, all constructed and arranged substantially as and for the purpose set forth.

13. In a fire-extinguisher nozzle, the combination with a valve-seat and a frame, of a combustible plug carried by the frame, a

valve held in position on said seat by said plug and otherwise unimpeded in its opening movement in any direction, and a combined lock and guard member carried by said plug.

all constructed and arranged substantially as and for the purpose set forth.

Signed at Cleveland, Ohio, this 2d day of February, 1901.

HARRY C. MONTGOMERY.

Witnesses:

BERNH. F. EIBLER,  
JAMES MATHERS.

; 14. In a fire-extinguisher the combination of the frame A, valve B, an inflammable plug C, initial igniter D carried by the valve-stem and a combined lock and guard member E,

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