

(No Model.)

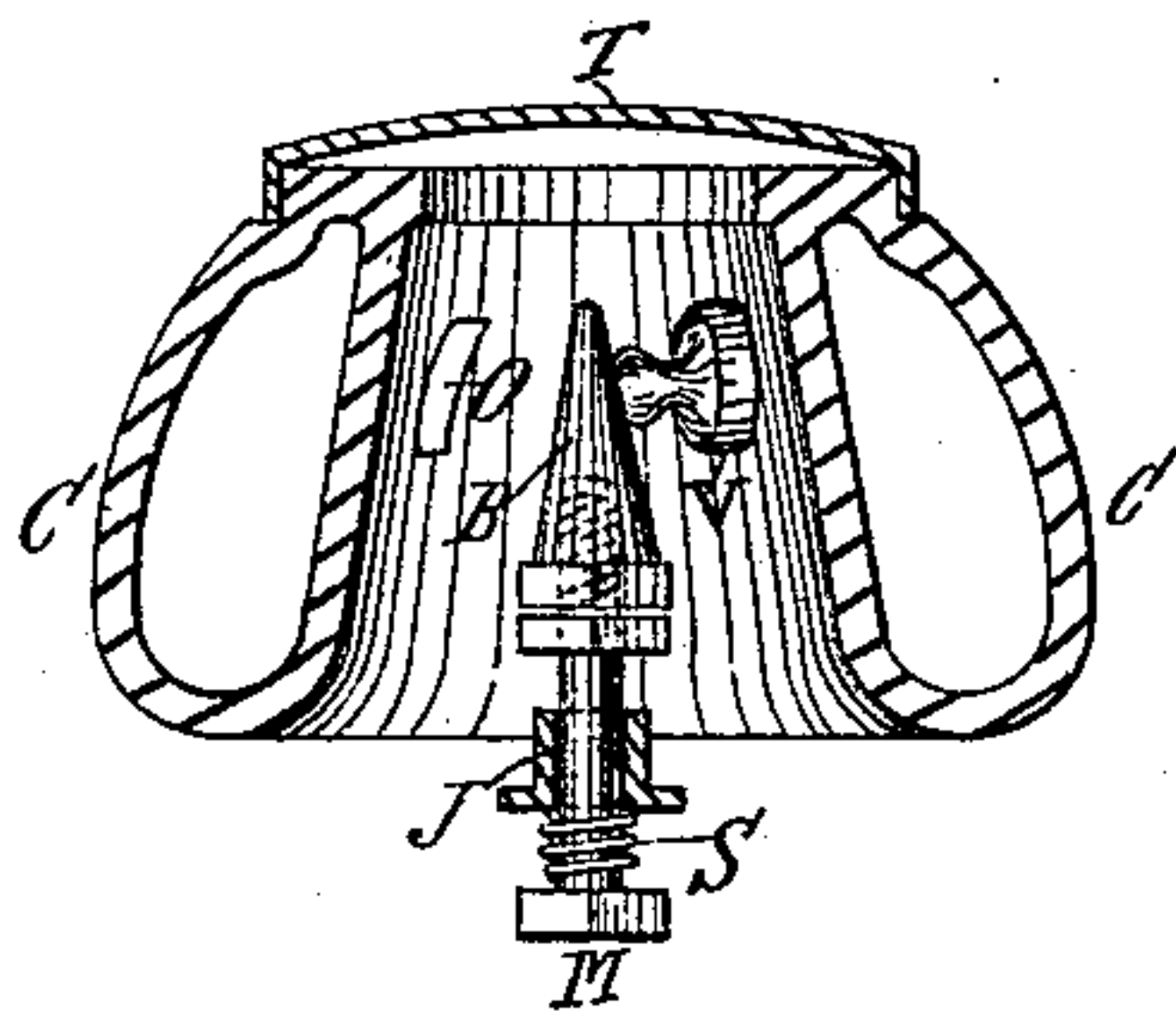
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AUTOMATIC FIRE EXTINGUISHER.

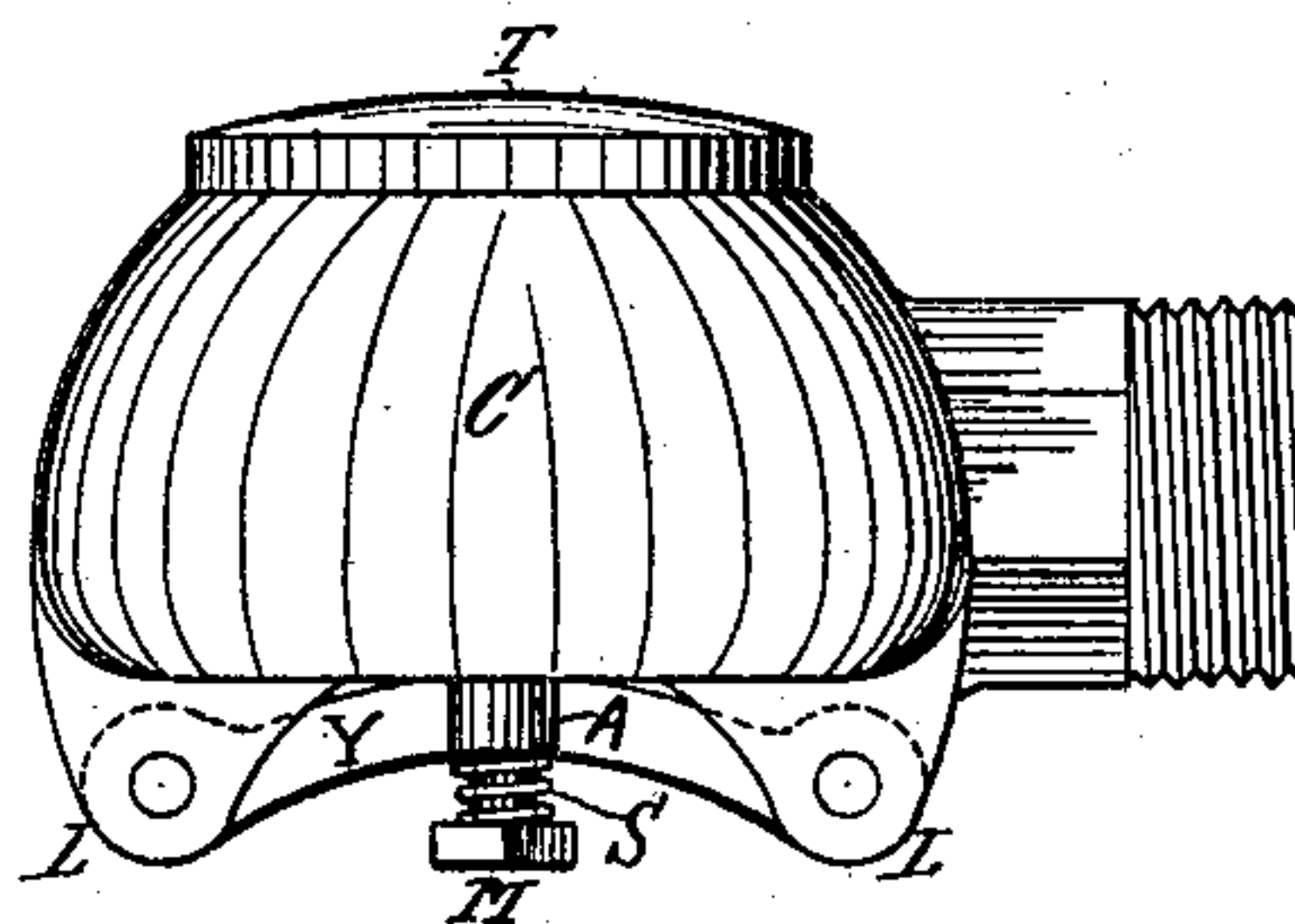
No. 262,776.

Patented Aug. 15, 1882.

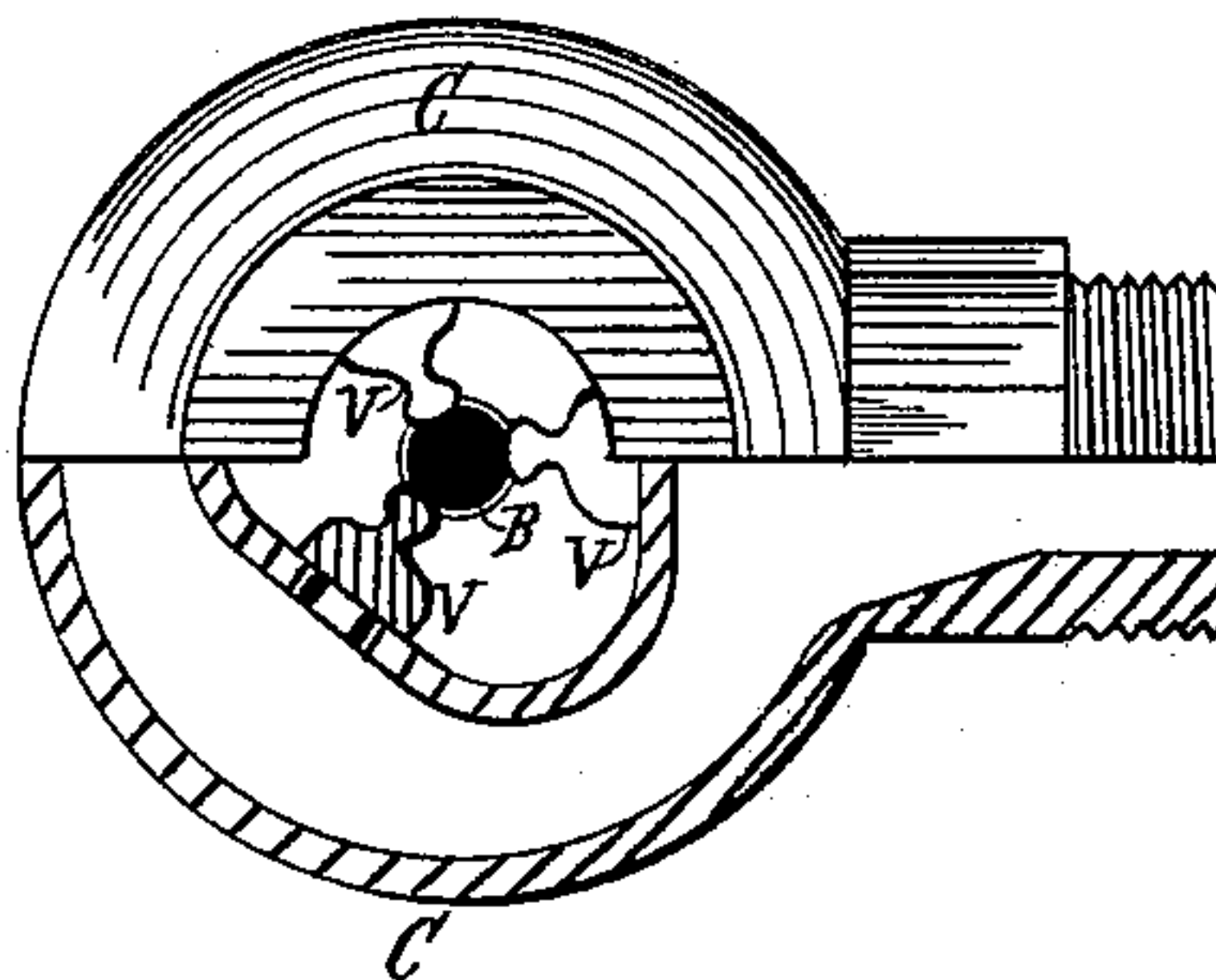
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses.  
John Buckler.  
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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 262,776, dated August 15, 1882.

Application filed April 21, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, CHAS. L. HORACK, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Automatic Fire-Extinguishers, of which the following is a specification, reference being had to the accompanying drawings, forming part of this specification.

10 The object of this invention is to construct an automatic fire-extinguisher in such a manner as to guard against the leaking of the same by employing a series of valves for closing the outlets, said valves being so constructed as to  
15 be wholly or partly balanced by the pressure of the extinguishing-fluid, the remaining pressure being taken up and resisted by a device constructed so as to remain firm and unyielding until destroyed or disconnected by the ac-  
20 tion of heat.

Another object of my invention is to construct the distributor for the extinguishing-fluid in such a manner that only a few outlets are required to produce a fine spray whenever  
25 sufficient pressure is applied to the extinguishing-fluid.

The general difficulty in regard to distributors for extinguishing-fluids (excepting those using deflectors and revolving distributors) has  
30 been heretofore that a considerable number of perforations have been required in order to produce a general distribution of the extinguishing-fluid in the shape of a coarse spray needed for extinguishing fires. These perforations  
35 have frequently become obstructed by foreign substances contained in the extinguishing-fluid, as well as by dust, fiber, &c., in the rooms in which they are placed. The novel feature of applying intersecting streams to fire-extin-  
40 guishers permits the use of outlets of such size as cannot well become obstructed, owing to the causes named.

The invention consists in arranging the outlets in a distributor in such a manner as to  
45 produce intersecting streams, and also in providing a series of valves, each closing one or more outlets, with a brace or a series of braces, so adjusted that a part of the pressure caused or transmitted by the extinguishing-fluid is re-  
50 ceived by such a brace and transmitted by it

to a soldered joint fusible at a low temperature, or constructed in any other manner so as to be released by the action of the heat, as will be more fully set forth hereinafter, while the peculiar position and construction of said  
55 valves cause the principal part of the pressure at one perforation to be balanced by the pressure at one or more perforations in another part of the distributor.

Automatic sprinklers using valves for closing outlets generally have the disadvantage that changing pressure in the pipes containing the extinguishing-fluid produces a sudden action upon said pipes and valves, commonly  
60 called "water-hammer," which in time is apt to cause leaks. In my invention I secure immunity from this by the arrangement of a valve or valves as described above.  
65

In the accompanying drawings, forming part of this specification, Figure 1 shows a vertical  
70 section; Fig. 2, a side view, and Fig. 3 the ground plan of one half and a horizontal section of another half of an automatic sprinkler constructed according to my invention.

In Figs. 1, 2, and 3, V represents a valve  
75 closing one or more outlets on the inner side of a circular or ring-shaped sprinkling-cup. As indicated in Figs. 1 and 3, the valve-seats are arranged on three flat surfaces; although I do not wish to limit myself in regard to the  
80 number or the shape of said valve-seats. The perforations closed by the valves are shown to be oblong and "rifled," although any other shape might be used. The openings O O are shown to be converging in such a manner as  
85 to produce intersecting streams, thereby cutting up the water and producing a fine spray. The valves V V or their stems rest against a wedge-shaped or conical bracing-piece, B. It is evident that as long as all the valves are  
90 closed and remain in contact with said wedge-shaped piece B any additional pressure upon said valves, owing to water-hammer, will be received and resisted by said bracing-piece B, as the lines of pressure resulting from the dif-  
95 ferent valves meet within the body of B, there counteracting and balancing each other to a great extent, only a very small resulting force or pressure being transmitted along B and to a soldered joint, J, which is made between a  
100



piece forming the continuation of B and a yoke, Y, which latter is connected rigidly with the sprinkling cup or reservoir containing the extinguishing-fluid. Below said yoke Y and  
5 resting against the same, and also against a seat, M, forming the extreme lower end of the continuation of B, is a spring, so adjusted that when, owing to the heat of a fire, the soldered joint is released, said spring S will force the  
10 bracing-piece B downward, thereby allowing the valves V V to drop off and to open the outlets O O.

Between the soldered joint J and that part of B which is in contact with the valves a  
15 screw-thread arrangement is introduced to permit the forcing upward of the bracing-piece B after the soldered joint has been made, thereby tightening the valves. The bracing-piece B, being made hollow in part and provided  
20 with a screw-thread on its interior surface, the spindle entering it from below having corresponding screw-thread, it will readily be seen that by screwing the bracing-piece B upward or downward the valves can be tightened or  
25 loosened. It will be well to provide seats of lead, rubber, or other suitable material for the valves.

The details in the device described above might be varied in many respects. The solder  
30 joint shown to be made between a pin and a surrounding sleeve might instead be made between two flat metallic surfaces. The yoke Y might also be dispensed with and the continuation of the bracing-piece B might be soldered  
35 to the sprinkling-cup itself.

The loose cap T, shown in Figs. 1 and 2 as resting on the sprinkling-cup C directly above the valves V V, is intended to protect the same. The force of the extinguishing-fluid  
40 discharged through the openings O O will remove the same, thereby allowing an unobstructed discharge. A cap might also be placed below the valves, leaving, however, the soldered joint exposed.

I do not claim broadly the use of intersecting streams, as I am aware that the same have been used heretofore for street-sprinklers, as well as in factories for producing a fog or mist for moistening various materials in industrial  
50 operations, and for fountains and cooling and moistening the air of dwellings.

I claim as my invention and wish to secure by Letters Patent—

1. In fire-extinguishers, an automatic distributor provided with a series of openings arranged so as to produce intersecting streams, combined with a series of valves arranged to cover said openings, as set forth.

2. In fire-extinguishers, an automatic dis-

tributer provided with a series of openings arranged so as to produce intersecting streams, combined with a series of valves arranged to cover said openings, as set forth, the arrangement being such that the pressure of the extinguishing-fluid partly balances said valves, the remaining pressure being taken up by one common brace.

3. In fire-extinguishers, an automatic distributor provided with a series of openings, combined with a series of valves arranged to cover said openings, the arrangement being such that the pressure of the extinguishing-fluid partly balances said valves, the remaining pressure being taken up by a single support.

4. In fire-extinguishers, an automatic distributor provided with a series of openings, combined with a series of valves arranged to cover said openings, the arrangement being such that said valves rest against a common support, adjusted so as to become relieved by the heat of a fire, as set forth.

5. In fire-extinguishers, an automatic distributor provided with a series of openings, combined with a series of separate and independent valves, all said valves being held in position by means of one soldered joint, as set forth.

6. A ring or link shaped distributor for fire-extinguishing purposes, having a series of perforations arranged along its inner surface in such a manner as to produce intersecting streams, for the purpose set forth.

7. A ring or link shaped distributor for fire-extinguishing purposes, having a series of perforations arranged along its inner surface in such a manner as to produce intersecting streams, said inner surface being protected by a cap, substantially as set forth.

8. In fire-extinguishers, an automatic distributor provided with a series of openings, combined with a series of valves arranged to cover said openings, said valves being made to rest against a bracing-piece adjusted and forced toward the valves by means of screw-threads.

9. In fire-extinguishers, an automatic distributor provided with a series of openings, combined with a series of valves arranged to cover said openings, said valves being made to rest against a bracing-piece, provided or connected with a spring for the purpose of removing said bracing-piece after it has become relieved by the heat of a fire.

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Witnesses:

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T. W. OSBORN.