

No. 868,459.

PATENTED OCT. 15, 1907.

A. M. LEWIS.
SPRINKLER HEAD.

APPLICATION FILED FEB. 20, 1907.

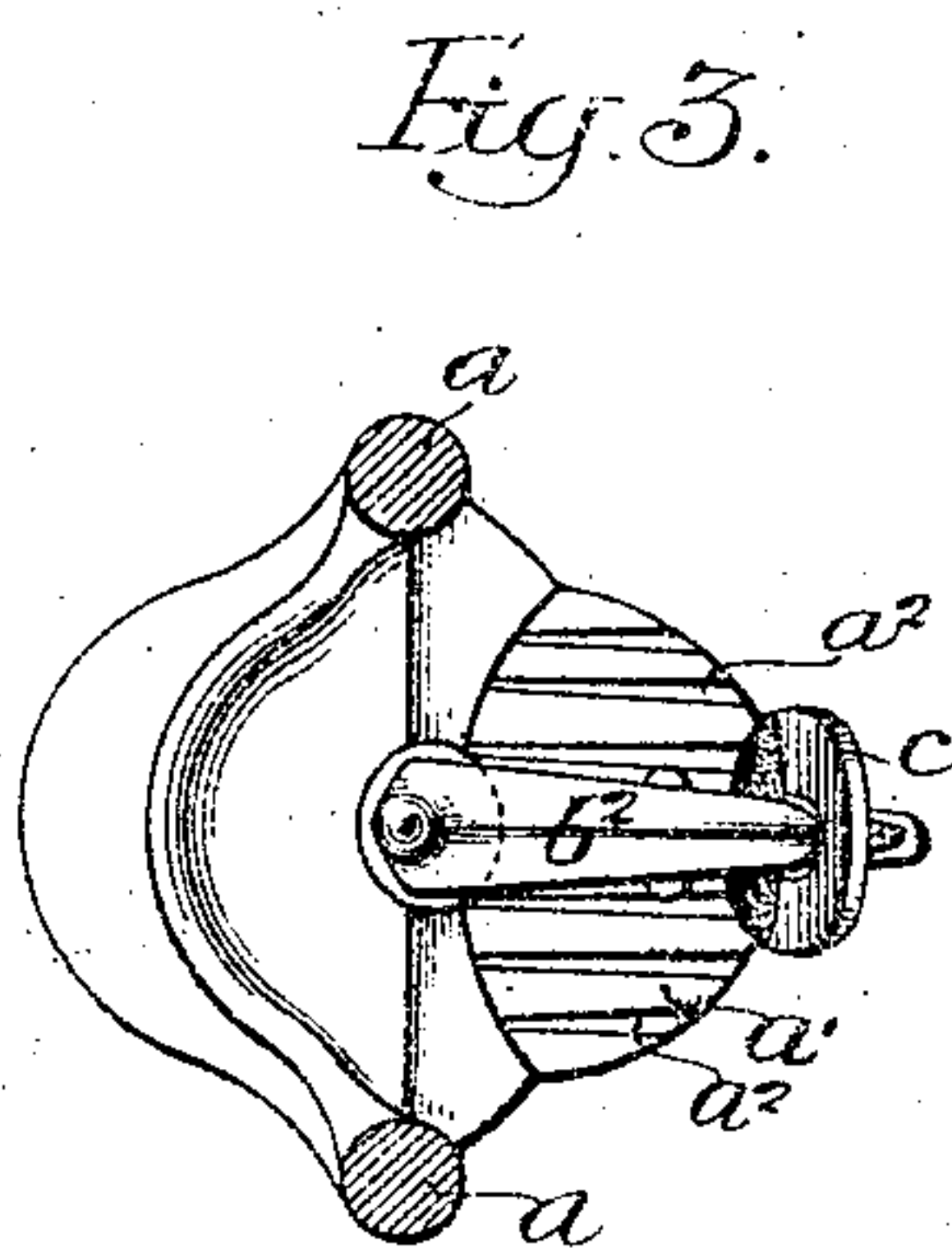
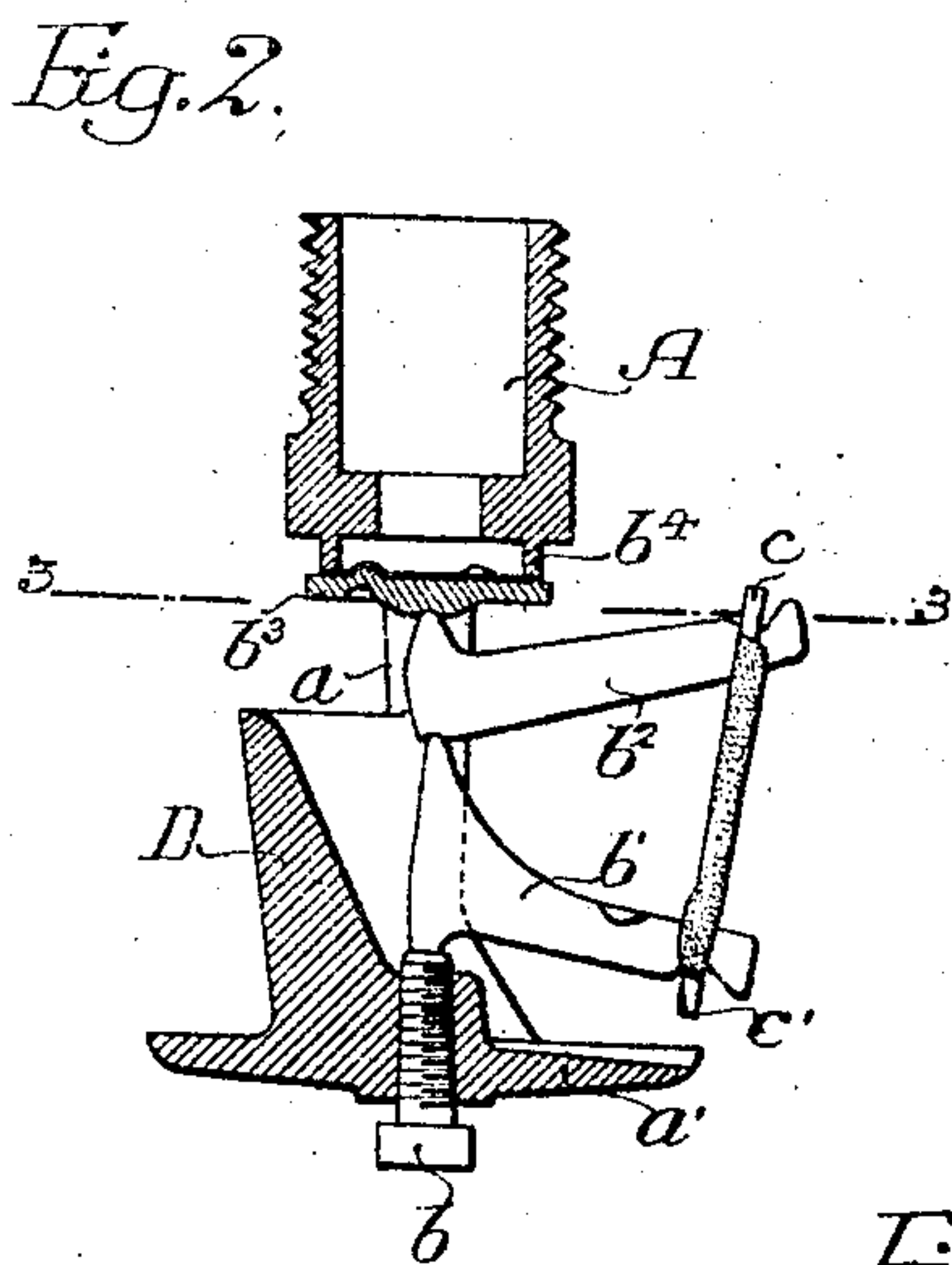
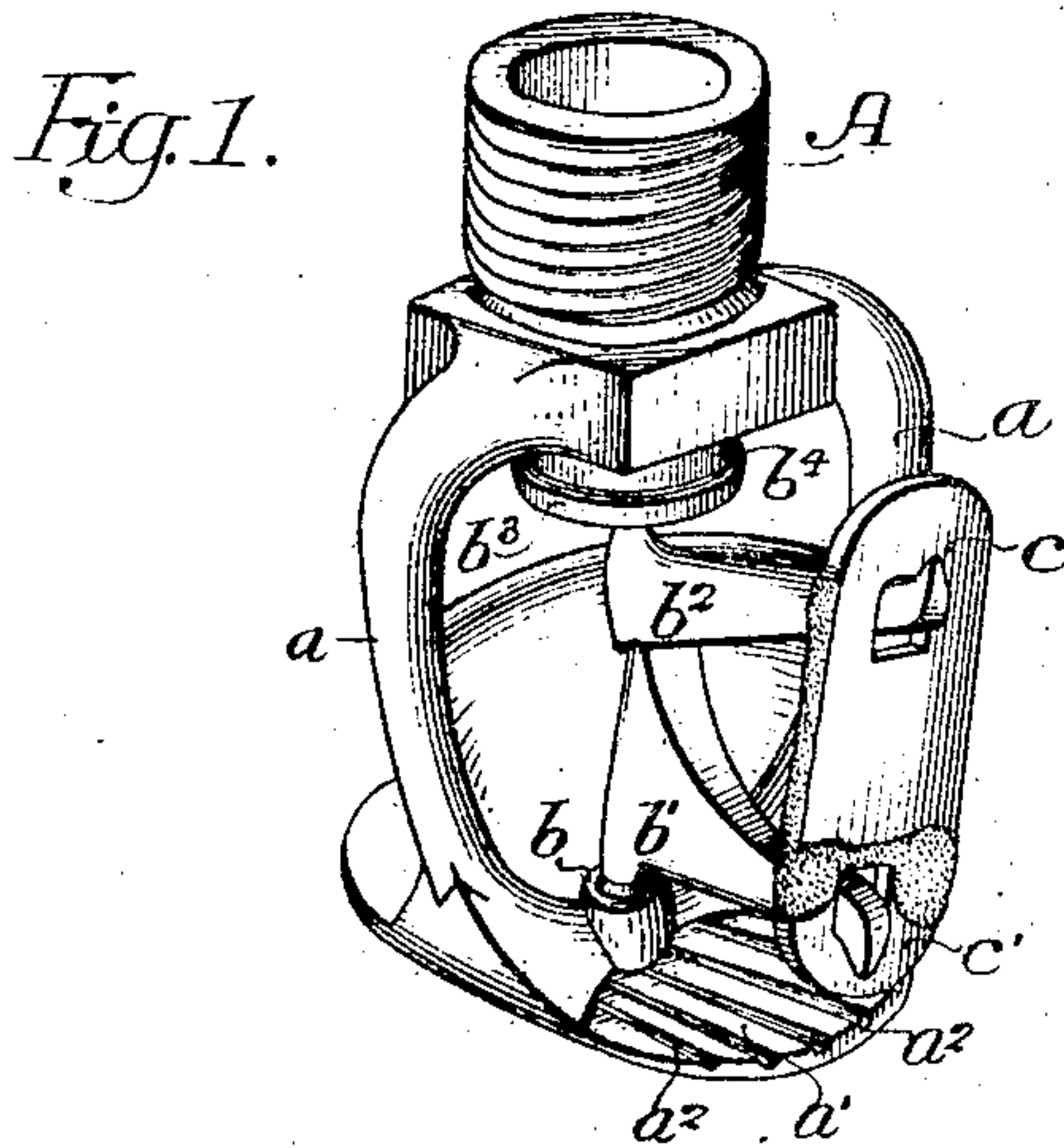
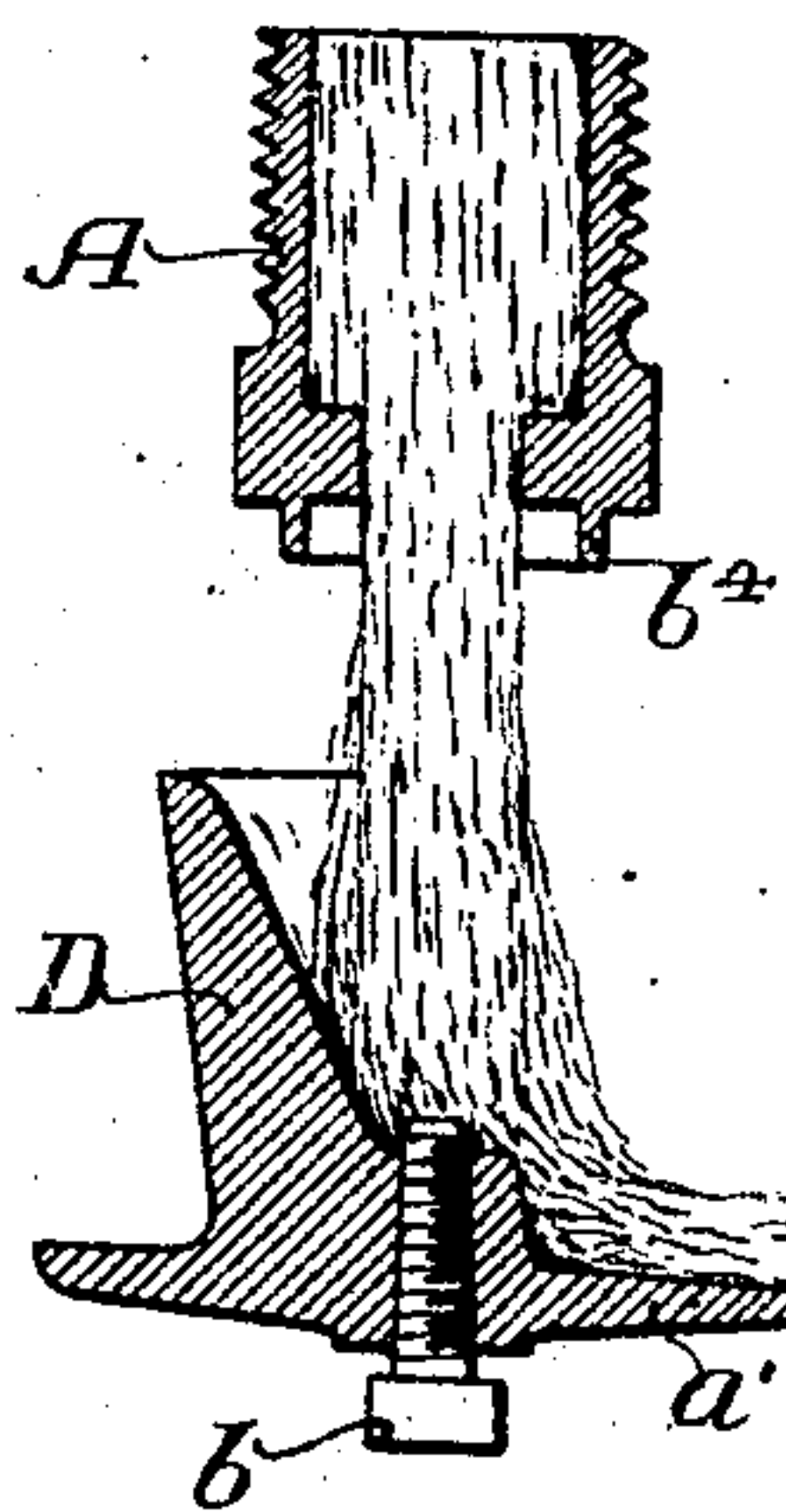


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

ARTHUR M. LEWIS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO INTERNATIONAL SPRINKLER COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

SPRINKLER-HEAD.

No. 868,459.

Specification of Letters Patent.

Patented Oct. 15, 1907.

Application filed February 20, 1907. Serial No. 358,457.

To all whom it may concern:

Be it known that I, ARTHUR M. LEWIS, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Sprinkler-Heads, of which the following is a specification.

My invention relates to improvements in automatic fire extinguishing apparatus of the particular class known as sprinkler heads:—having for its object the provision of a device of this class of such construction that under operative conditions it shall direct water over a certain limited and predetermined area to the exclusion of another area or areas.

It is further desired that the arrangement of parts of the sprinkler shall be such that the water shall be directed not only over a certain area, but shall be so distributed as to be most effective in extinguishing a fire within the area which it serves.

These objects I attain as hereinafter set forth, reference being had to the accompanying drawings, in which:—

Figure 1 is a perspective view of a sprinkler head constructed according to my invention; Fig. 2, is a vertical section of the sprinkler head shown in Fig. 1; Fig. 3, is a horizontal section taken on the line 3—3, Fig. 2, and Fig. 4, is a vertical section, similar to that shown in Fig. 2, but illustrating the course taken by the water as it is directed by the sprinkler head.

In the above drawings, A represents the tubular base of a sprinkler head, threaded in the customary manner for attachment to the water supply pipe for a fire extinguishing system. Projecting from this base are two arms *a*, united to form a yoke, and carrying opposite the base a deflector plate *a'* of the construction described and claimed in a pending application of John C. Scott, filed Sept. 4, 1906, Serial No. 333,146. This plate has substantially parallel grooves *a²* extending outwardly from the yoke arms *a* and lies in a plane substantially normal to the plane of the arms *a*. In the center line of the head, at the point of junction of said arms *a*, is a screw *b* forming a socket for the reception of one end of a lever *b'*. A second lever *b²* engages a cap or valve *b³* normally closing the opening in the base piece, and also engages the lever *b'* in such a manner that the point of contact between the yoke piece and the lever *b'*, the point of contact between the lever *b²* and the valve *b³*, and the point or points of contact between the levers, are not in a straight line.

Each of the levers *b'* and *b²* has a free arm and these two arms are separably connected by a pair of links *c* and *c'* held together by fusible solder having a relatively low and predetermined melting point. So far the sprinkler head is similar in construction to those heretofore known, and my invention consists in placing between and to one side of the arms *a* a deflecting web or guide section D. As will be seen from Figs. 2

and 3, this web extends from the deflector plate *a'* on one side of the plane of the arms *a* toward the outlet of the tubular piece A; being flared at its upper edge and curved outwardly so as to catch or be struck by the water coming from said outlet of the base when the valve is released and gradually changing its course so as to direct it all onto the opposite side of the plane of the arms; the curvature of this piece being upwardly and outwardly from the socket screw *b*.

It is, of course, obvious that while I have illustrated the deflector or guide web D as formed integral with the arms *a* and the deflecting plate *a'*; it may be made in a piece separate therefrom, if desired, and be secured in place in any desired manner.

Under operating conditions the two levers *b'* and *b²*, with their connecting links, project on that side of the plane of the arms *a* opposite the guide plate D, and when the temperature in the vicinity of the sprinkler head rises above a predetermined point, the links *c* and *c'* separate, allowing the levers *b'* and *b²* to spring apart. The valve *b³* is then forcibly moved from the seat *b⁴* at the end of the tubular base A, either by pressure within the supply pipe or by springs, and the water flows outwardly as indicated in Fig. 4. In so doing it strikes the deflector or guide web D and is given a curvature to the opposite side of the sprinkler head, as well as spread out to some extent before it strikes the plate *a'*. Upon this it is still further spread out so as to be finally delivered over an area in the form of a flat and relatively dense sheet, which has been found most effective for the quick extinguishing of fire.

The device is particularly adapted for use in car storage sheds or barns, where it is desirable to protect a line of cars extending adjacent to a wall. Under such conditions the sprinkler heads will be mounted so as to direct water delivered by them away from the wall toward the cars; it being obvious that by this means such water is guided over areas where it is needed, thus avoiding unnecessary waste and consequent low efficiency, necessarily resulting from the use of sprinklers of the ordinary construction.

I claim:—

1. As a new unitary article of manufacture, a sprinkler head constructed to direct water over a definite area on one side only of a plane parallel to the line of the outlet of said head including means for changing the direction of the water flow through an angle of 90°, substantially as described.

2. As a new unitary article of manufacture a sprinkler head having an outlet, and provided with a deflector on one side of said outlet formed to gradually change the direction of the water flow therefrom through an angle of 90°, so as to direct it to the side of said head opposite the deflector, substantially as described.

3. A sprinkler head having a tubular base, arms forming a yoke extending from said base, a valve normally closing

the outlet of the base, a temperature responsive device for maintaining the valve in position, with a web extending between the arms and formed to direct water to one side of the sprinkler head, substantially as described.

- 5 4. A sprinkler head consisting of a base constructed for attachment to a water supply system and having a valved outlet, temperature responsive means normally preventing flow from said outlet, a deflector plate opposite the outlet
10 thereof, and a guide piece placed to direct water from the outlet toward one side of the deflector plate, substantially as described.

5. The combination of a sprinkler head consisting of a tubular structure designed for attachment to a fluid supply
15 system, deflecting means for the sprinkler head consisting of a concave web placed to deflect liquid from the outlet to one side of the line thereof, with a deflector plate forming a continuation of the web and constructed to spread the water in a sheet substantially at right angles to the
20 line of the outlet, substantially as described.

6. As a new unitary article of manufacture a sprinkler head having an outlet, and a deflector on one side of outlet consisting of a concave plate curved through an angle of

90° to direct water from said outlet to one side only of the head, substantially as described.

7. A sprinkler head having an outlet, and a deflector therefor having a portion on one side of said outlet, and curved to bring another portion opposite the outlet so as to cause the entire flow from the head to be directed to one side only thereof, substantially as described.

8. The combination of a sprinkler head consisting of a tubular base, a yoke projecting therefrom, a concave deflector projecting on one side of the plane of the yoke and formed to direct the water from the outlet toward the opposite side of said plane, a cap for the outlet, levers
35 interposed between the cap and the yoke and projecting on that side of said yoke opposite the deflector, and temperature responsive means for normally holding the levers in position to maintain the cap over the outlet, substantially as described.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ARTHUR M. LEWIS.

Witnesses:

H. JOHNSON,

J. F. MARPLEY.