

No. 634,899.

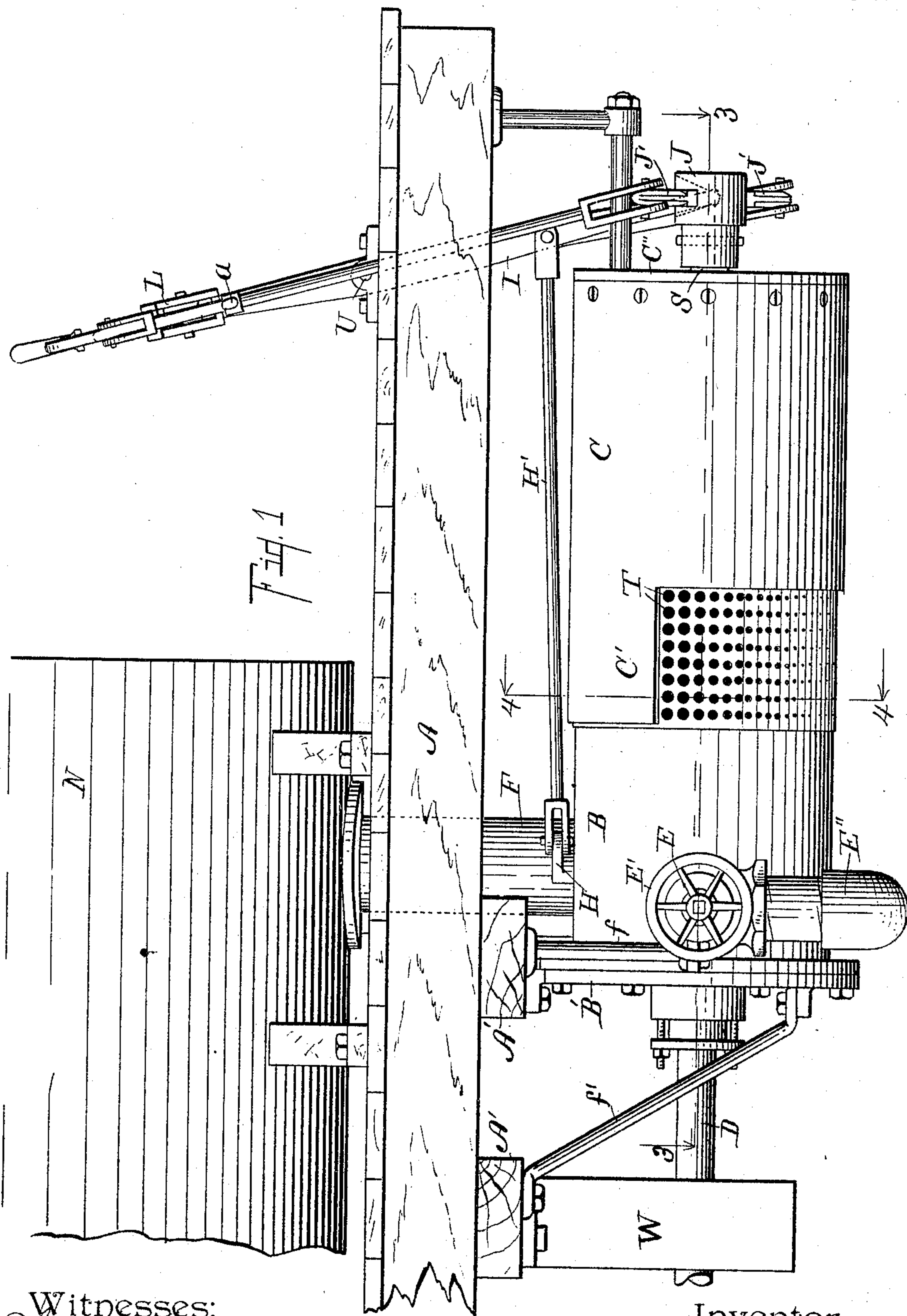
Patented Oct. 17, 1899.

W. H. MILLER.
SPRINKLER.

(Application filed Feb. 23, 1898.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses:

W. S. Wood
Osie A. Earl

Inventor,

William H. Miller
By *Fred L. Chappell*
Att'y.

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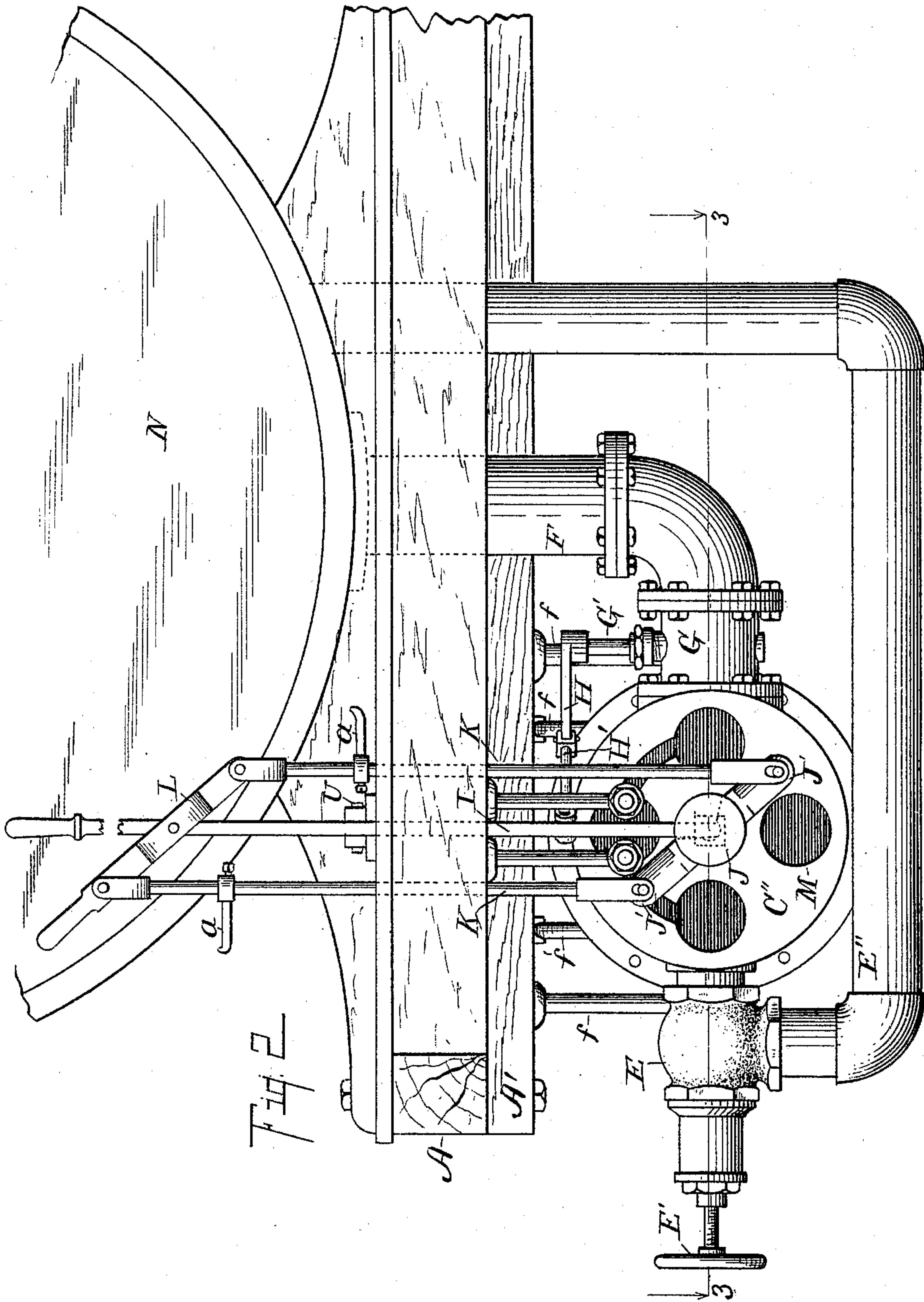
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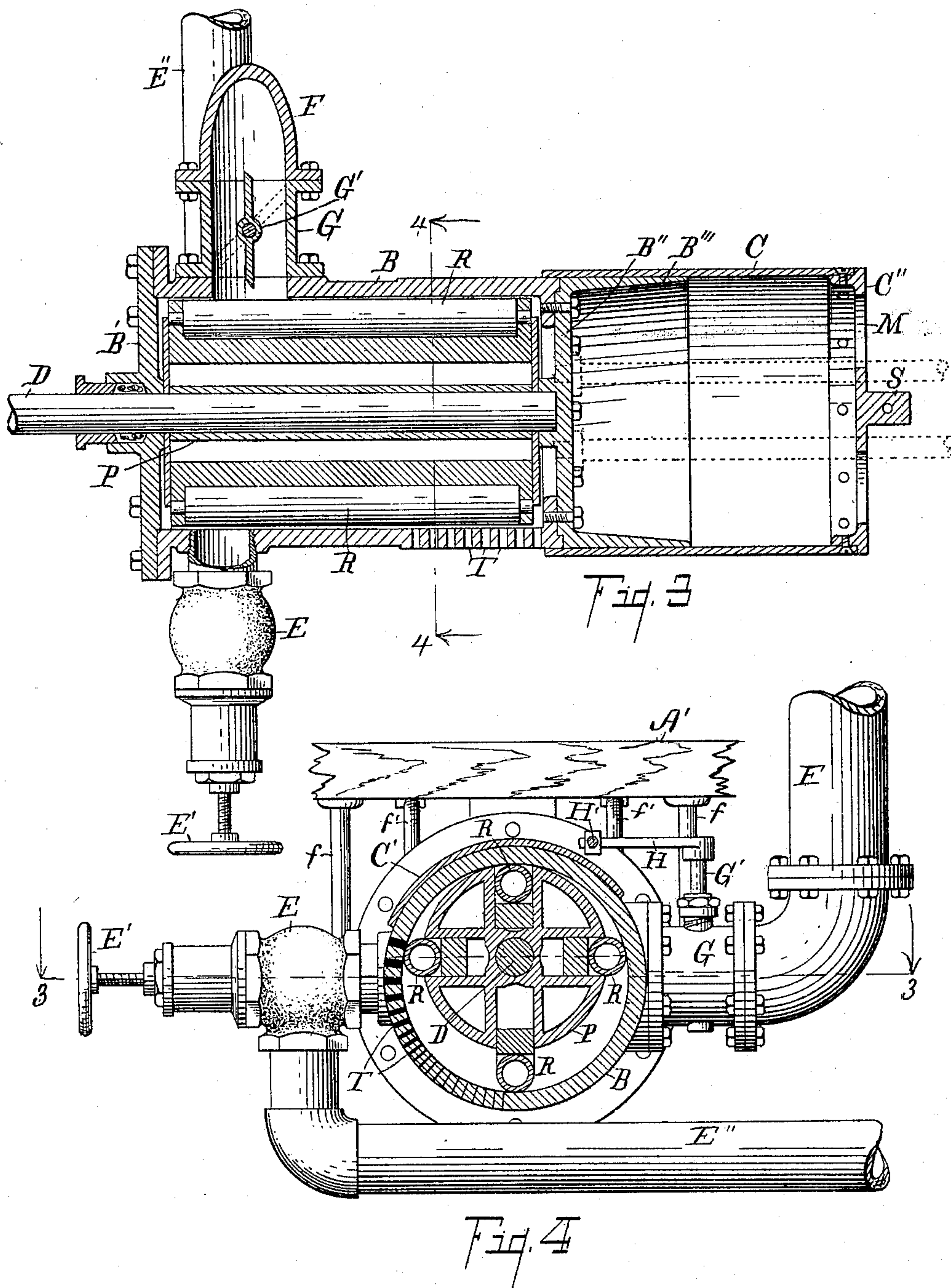
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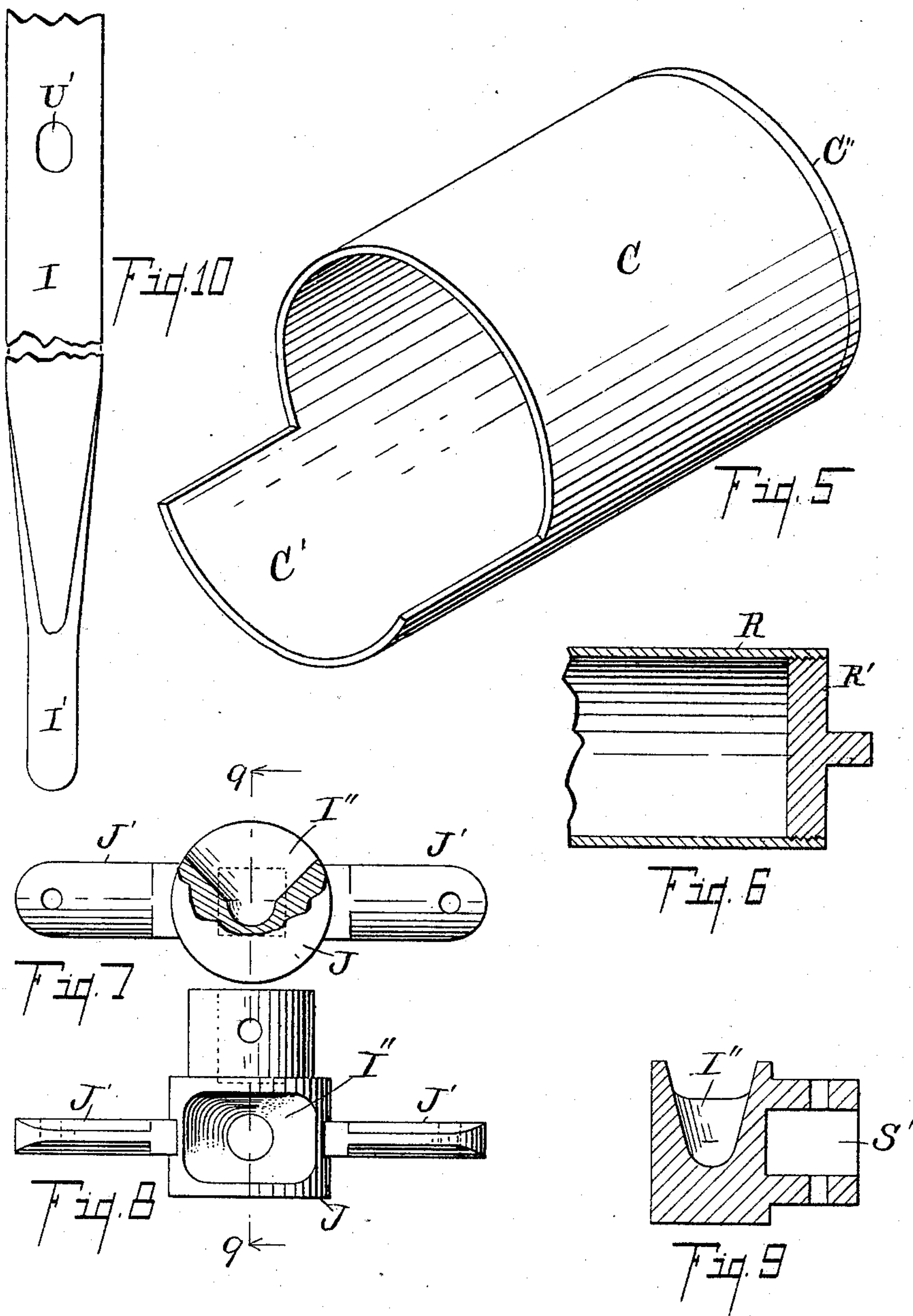
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4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

WILLIAM H. MILLER, OF SOUTH BEND, INDIANA, ASSIGNOR TO THE MILLER-KNOBLOCK COMPANY, OF SAME PLACE.

SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 634,899, dated October 17, 1899.

Application filed February 23, 1898. Serial No. 671,401. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. MILLER, a citizen of the United States, residing at the city of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Sprinklers, of which the following is a specification.

This invention relates to improvements in sprinklers, and particularly to improvements in sprinklers adapted for use on street-railways, though of course the same construction could be used in connection with any kind of car or vehicle desired.

This invention is an improvement in many particulars on the construction shown in my former patent, No. 590,999, issued to me on the 5th day of October, 1897, by the United States Patent Office, though there are many features peculiar to this structure.

By the special construction of head I have here produced it is possible to throw the spray to a great distance, and owing to this fact careless operatives frequently throw the water beyond the point desired, resulting, in the case of thickly-populated sections, in great inconvenience to pedestrians passing on the sidewalk and frequently to the injury of goods displayed in front of stores. I also have found certain other features in my former construction that could be conveniently simplified for the use of sprinklers requiring less capacity and still secure the desired results. I have also improved the actuating means for controlling the sprinkler-head, so that the same is much simpler and fully as efficient for certain uses.

The objects of this invention are, therefore, first, to provide an efficient means of properly controlling the force and amount of spray delivered by the spray-head; second, to simplify the construction of devices of this character; third, to provide an improved actuating means for controlling the sprinkler-head; fourth, to lighten the structure without in any way reducing its efficiency, and, fifth, to provide an improved means of preventing injury and strain upon the parts from quickly closing the spray-openings.

Further objects will definitely appear in the detailed description to follow.

I accomplish these objects of my invention

by the devices and means described in this specification.

The invention is definitely pointed out in the claims.

The structure is illustrated in its preferred form in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a detail side elevation of one of my improved sprinkler-heads secured to the under side of a platform of a street-railway sprinkler-car, portions of the tank and platform of the car only being shown. Fig. 2 is an end elevation of the structure and portions appearing in Fig. 1. Fig. 3 is a horizontal longitudinal sectional view through the sprinkler-head and its connecting-pipes, taken on a line corresponding to line 3 3 of Figs. 1, 2, and 4. Fig. 4 is a transverse detail sectional elevation through the sprinkler-head, taken on a line corresponding to line 4 4 of Fig. 3. Fig. 5 is an enlarged detail view of the sleeve for controlling and closing the spray-openings. Fig. 6 is an enlarged detail longitudinal sectional view through one of the antifriction-rollers of the rotary pump. Fig. 7 is an enlarged detail end elevation of the cross-bar J' and lever-boss J, used to actuate the controlling-sleeve C. Fig. 8 is a top plan view of the same. Fig. 9 is a transverse sectional elevation taken on line corresponding to line 9 9 of Figs. 7 and 8. Fig. 10 is an enlarged detail view of the actuating-lever.

In the drawings all of the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, A represents the platform of a suitable car or vehicle. A' A' are cross-beams beneath the same, to which my improved sprinkler-head is attached by suitable suspending-bolts f and braces f', secured thereto.

A large pipe P connects the sprinkler-head B with the supply-tank N above, delivering the water to the same well toward the rear end of the sprinkler-head. Toward the outer end of the sprinkler-head B perforations T are provided, large at the top and smaller toward the under side, to deliver the spray evenly over the full width to which it is to be

operated. A sleeve C, with a projecting portion C' and having a perforated head C'', slides over the sprinkler-head B to control and open and close the perforations T. The end of the
 5 sprinkler-head is closed by a plate B'', having an extension B''', which serves as a guide for the sleeve C. A plate B' is at the rear end, having a suitable stuffing-box, through which a shaft D extends. A suitable motor
 10 or other means W is provided to actuate the shaft. The shaft D passes into the sprinkler-head above its center to support a rotary pump-head P, similar in design to the pump-head illustrated in my former patent above
 15 referred to, only in this case the antifriction-rollers on the wings are made of tubes to reduce their weight, as it is found that it is desirable to reduce the centrifugal force of these rollers owing to the high rate of speed
 20 at which the head is rotated. The sleeve C I actuate by means of the lever I, which is pivoted to the platform above and extends below into a tapering socket I'' in the boss J, secured on the outer end of the sleeve by a suitable
 25 pin inserted through a projecting lug or boss S on the end of the sleeve C. This permits the free movement of the sleeve out and in by the lever without sliding the same on its pivot, though I prefer to slightly slot the
 30 same in addition.

On the lever I, I pivot a cross-bar L above, which is connected to the cross-bar J' below by suitable parallel connecting-rods K K. By this means it is possible to rotate the sleeve
 35 as well as to reciprocate it back and forth to shut off the spray-openings in the sprinkler-head. By this means the spray-openings can be cut off from the top downward by the projecting segment C' to limit the territory covered
 40 by the spray, or the sleeve can be removed onto the head and cut off all of the spray-openings.

I provide in the supply-pipe at G a butterfly-valve G', which has a lever H, to which I
 45 connect a rod H', which is pivotally connected to the lever I, so that the supply of water is limited and controlled by the operation of the lever by its more or less closing the supply of the pump, thus regulating the supply of
 50 water to the amount of spray-openings exposed. With this means, however, it is possible to limit the amount of spray-openings E without closing the valve, and under such circumstances it is necessary to make provision
 55 to prevent undue straining of the head from the great pressure within, because the water is delivered with great power from this spray-head. I provide for this contingency a water-relief valve E, which is adjusted by
 60 the hand-wheel E' and connects the same to deliver back any surplus water into the tank N above by the pipe E''. This relief-valve is of advantage, further, because by a little experimentation it will be found what pressure
 65 is requisite in the sprinkler-head to throw the spray to a certain width, and the relief-valve can be readjusted to that point, thus

preventing casualties and compelling proper distribution of water independent of the skill of the operative, avoiding the casualties referred to in the first part of this specification. 70

Having thus described my improved sprinkler, I desire to state that it can be greatly varied in its details without departing from my invention, though I believe the exact structure is the best in every particular for the
 75 uses intended. It would be possible with this structure to dispense with the butterfly-valve and still leave the head perfectly protected by the relief-valve, though it will be found to require much less power to properly
 80 operate the same if the butterfly-valve is put in position. While the exact structure of the operating-levers is believed by me to be the best under all circumstances, I am aware that the sleeve might be otherwise operated.
 85 The exact means for connecting all the parts might also be varied, and numerous other variations will suggest themselves to persons skilled in the art. I show my invention in
 90 an approved form, but realize that other forms of it are possible.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is— 95

1. In a sprinkler the combination of a suitable car or vehicle; the supply-tank N, thereon; the pipe F, leading therefrom; a sprinkler B, to which said pipe connects at its rear
 100 end having perforations T, large at the top and smaller toward the under side; a sleeve C, with a projecting segment C', adapted to reciprocate and rotate over the sprinkler-head to control the spray-perforations and open
 105 and close the same; a water-relief valve E, connected to said head, having a pipe therefrom to return the surplus to the tank; a rotary pump-head within said spray-head supported on shaft D, extending longitudinally
 110 of said head and above the center thereof, the said rotary head having radially-movable wings with hollow antifriction-rollers R, to traverse the interior of the sprinkler-head; a lever I, extending into a socket supported
 115 on the end of said sleeve C, and transverse bars J', and L, with parallel connecting-rods K, K, pivoted on the lever I, for rotating the said sleeve, and a butterfly-valve in the supply-pipe F, connected by the rod H', to the
 120 lever I, to control the supply of water delivered to the sprinkler connection with the means for controlling the amount of spray-opening, all coacting together substantially as described for the purpose specified.

2. In a sprinkler the combination of a suitable casing having spray-openings thereon; a rotary pump within said casing, a shell or sleeve outside of the said casing adapted to control or cut off the spray-openings; a supply-pipe leading to said sprinkler-head; a
 130 water-relief valve connected to said head; a lever to actuate the controlling shell or sleeve; a valve in the supply-pipe; and connections from the valve to the controlling-lever to con-

trol the supply of water in its relations to the spray-opening for the purpose specified.

3. In a sprinkler the combination of a suitable casing having spray-openings therein; a rotary pump within said casing; a movable shell or sleeve outside of said casing adapted to control or cut off the spray-openings for the purpose specified.

4. In a sprinkler the combination of a suitable casing containing perforations; a movable sleeve adapted to fit over and control the same; a boss on the end of said sleeve containing a suitable socket I', and having projecting arms J', a lever I, with the end adapted to project into the socket supported by said sleeve; the cross-arm L, pivoted to said lever and the rod K; connecting the said arm I, and L, together so that the shell can be conveniently rotated or reciprocated on the casing to control the spray-openings for the purpose specified.

5. In a sprinkler the combination of a suitable source of supply; a sprinkler-head hav-

ing a rotary pump therein and a water-relief valve connected to said head so that the amount of pressure in the head can be controlled to control the distance to which the spray will be delivered, for the purpose specified.

6. In a sprinkler the combination of a suitable spray head or casing; a delivery-pipe thereto; means of forcing the water through the head; a valve in the delivery-pipe; means of controlling the spray-openings and connections therefrom to the valve in the supply-pipe to regulate the amount of water delivered in proportion to the spray-openings exposed, for the purpose specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

WILLIAM H. MILLER. [L. S.]

Witnesses:

HORACE T. REYNOLDS,
ALBERT W. MORRELL.