Oct. 27, 1925. 1,559,019

W. C. TODD ET AL.

ROTATABLE SPRINKLER HEAD

Filed Aug. 17, 1922

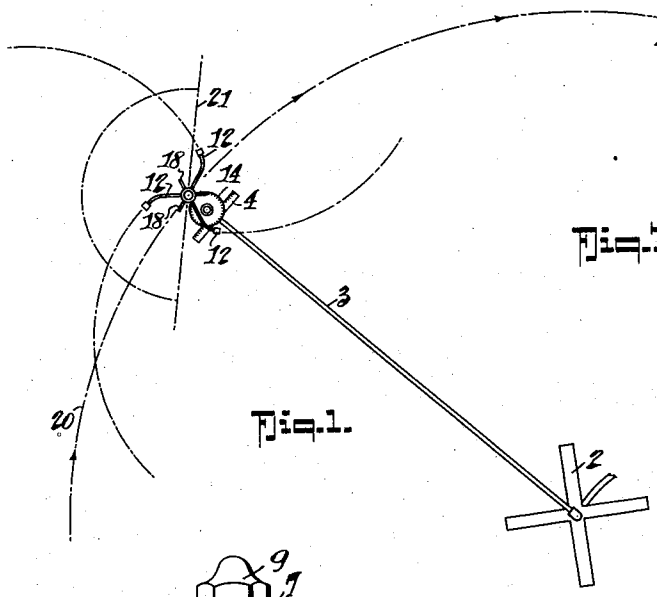


Fig. 1.

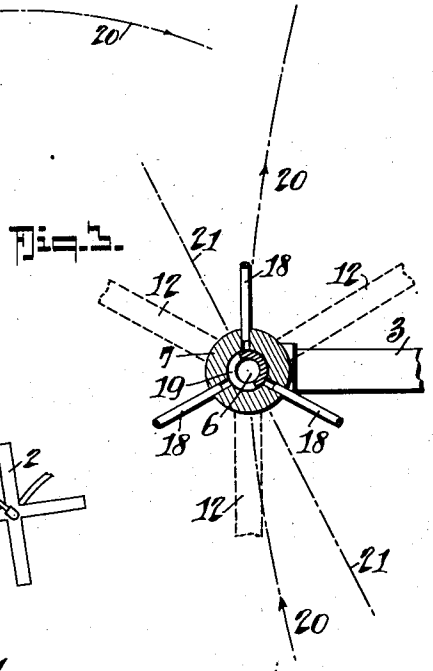


Fig. 3.

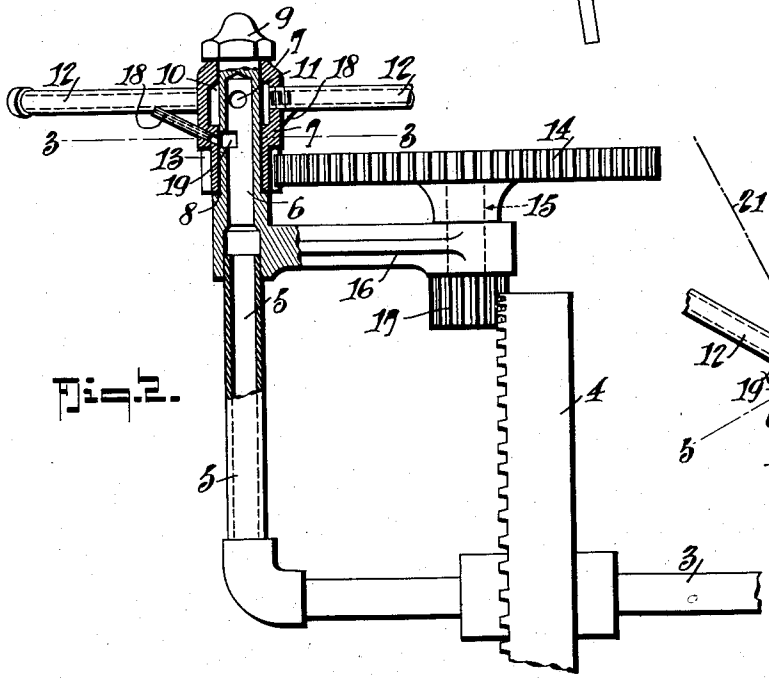


Fig. 2.

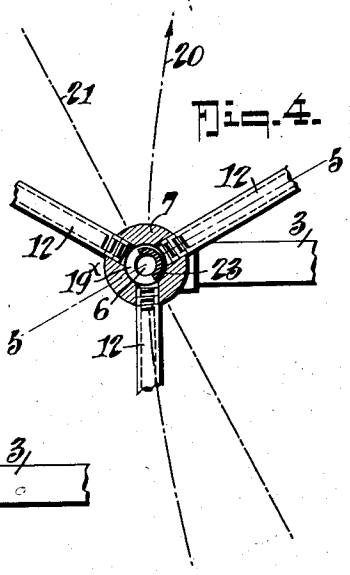


Fig. 4.

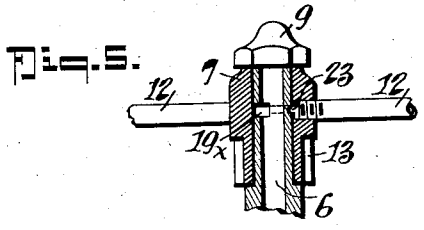


Fig. 5.

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Patented Oct. 27, 1925. 1,559,019

# UNITED STATES PATENT OFFICE.

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## ROTATABLE SPRINKLER HEAD.

Application filed August 17, 1922. Serial No. 582,382.

*To all whom it may concern:*

Be it known that we, WILLIAM C. TODD and JAMES W. POMEROY, citizens of the Dominion of Canada, residing at Victoria, in the Province of British Columbia, Canada, have invented certain new and useful Improvements in Rotatable Sprinkler Heads, of which the following is a specification.

This invention relates to a rotatable sprinkler of that class rotated by the reaction of the escaping water jets and is applicable to a simple standard sprinkler, and also to a travelling sprinkler where the sprinkler head is carried on the free end of a tubular radial arm movable about a central stand to which the water service is connected.

Where a rotatable sprinkler head travels in a circle to sprinkle a zone within and without that circle, the area sprinkled without the circle is greater than that within it, so that the area within the circle gets relatively more water than that without.

It is to remedy this defect and to sprinkle a further supply of water on the zone which is outside the circle of the sprinkler's travel, that the invention, which is the particular subject of this application, has been devised.

This desired result is attained by providing a means in the delivery of the water to the sprinkler head that will allow more water to pass to the sprinkler jets while the sprinkler head is moving round that portion of its rotation outside the circle of its travel than is delivered while it is rotating within the circle of its travel.

More specifically the desired object is attained by supplementing the reaction jets of the sprinkler, which are served with a continuous supply of water, from the tubular central stem, with a second series of simple jets, the water service to which is intermittent as described, being cut off automatically by the sprinkler head, while that head is rotating within the circle of the travel of the sprinkler head round its pivot stand.

The invention is particularly described in the following specification, reference being made to the drawings by which it is accompanied, in which:

Fig. 1 is a plan of the sprinkler to a relatively small scale, showing the arc of the circle in which the sprinkler travels about the central stand.

Fig. 2 is a vertical section of the sprinkler head to an enlarged scale.

Fig. 3, a sectional plan of the same on the line 3—3 in Fig. 2, and

Fig. 4 is a similar view of a modification.

Fig. 5 is a vertical section of the sprinkler head on the line 5—5 in Fig. 4.

In these drawings 2 represents a central stand about which the tubular radial arm 3 is rotatable and through which the sprinkler derives its water service, which arm is supported at its outer end on a wheel 4. From the end of this radial arm 3 a tube 5 is upwardly turned and on its upper end is secured a hollow spindle 6 on which a sprinkler head 7 is rotatably mounted between a shouldered seat at 8 and a cap 9 screwed on the upper end of the stem.

The upper part of the sprinkler head 7 is chambered as at 10, and opposite this chamber the stem 6 is apertured as at 11 to deliver water from its bore to the cavity of the chamber. A series of reaction sprinkler pipes 12 are secured at equal distances apart in the sprinkler head to be in communication with the chambering 10, the ends of which pipes are backwardly turned in the usual manner that the reaction of the escaping jets may rotate the head as indicated by the arrow in Fig. 1.

The lower part of this sprinkler head 7 is provided with teeth as a pinion 13, which teeth mesh with those of a wheel 14 secured on a short shaft 15 free to rotate in the bearing of a bracket arm 16 secured to or forming a part of the stem 6. On the lower end of the shaft 15 is secured a pinion 17, the teeth of which mesh with others formed on the edge of the supporting wheel 4 of the radial arm, so that rotation of the sprinkler head 7 at a relatively high rate of speed, rotates the supporting wheel 4 at a slower speed and carries the radial arm 3 around a circular track about the central standard

2. In this circular movement the water from the sprinkler is distributed over a zone extending on each side of the circular arc 20 in which the axis of the sprinkler head moves.

No novelty is claimed for the mechanism as so far described.

As the area of the sprinkler zone, which is outside the circular arc 20, is greater than that within that arc, and as practically the same amount of water is under ordinary conditions sprinkled on each side of the arc, the inner area receives more water per square foot than the outer area, so that to deliver a substantially uniform amount per square foot involves delivering a less amount to the inner area, or increasing the amount delivered to the outer area.

This latter object is attained by providing a series of jet apertures 18 in the sprinkler head 7 below the lower end of its chambering 10 and by providing a separate delivery port 19 in the hollow stem 6 that will admit water to these supplementary jets only while they pass, during rotation of the head, through the arc which lies outside the line 20 of the circular travel of the head.

The length of this port 19 will approximately be half the circumference of the stem 6, and as the water of the jets, owing to the rotation of the sprinkler head, will be thrown forward, the limits of admission and cut-off may be indicated by the line 21, that the water to each supplementary jet is admitted to it slightly before that jet passes the circular arc 20, and is cut off slightly before the jet aperture passes the same line on the other side of the sprinkler head. These jet apertures 18 are preferably inclined slightly upward, and may or may not have tubes inserted.

Instead of providing a supplementary series of jet apertures as described, the desired result may be obtained by restricting the flow of water to the reaction pipes 12, somewhat as shown in Fig. 4, where the sprinkler head is not chambered but the aperture 19× in the hollow spindle 6, which serves these reaction sprinkling pipes, is ported in the same manner as in Fig. 3, and between the ends of this port a limiting groove 23 is carried round the other side of the circumference.

The reaction sprinkling pipes 12 will thus receive a full supply of water while they pass around the outer arc of their revolution, but that supply will be restricted by the size of the groove 23, while travelling within the arc 20.

We do not desire to be confined to the particular construction herein illustrated and described, nor to the application of this water control to a reaction sprinkling head only, or exclusively to a travelling sprinkler head as the control may be applied to sprinkler heads of various kinds, but claim as novel the means for limiting the supply of water to a water sprinkler through a portion of the sprinkler head's rotation.

Having now particularly described our invention, we hereby declare that what we claim as new and desire to be protected in by Letters Patent, is:

1. In a rotatable water sprinkler, the combination with a hollow stem to which a water service is delivered, said stem having a lateral port the ends of which port are connected together around the other side of the stem by a limiting groove, a sprinkler head rotatably mounted on the stem, said head having a series of jet apertures extending from the bearing outward, which apertures will thus receive a full supply of water while passing the lateral port, and a restricted supply while passing along the groove during the remainder of the revolution of the head.

2. In a traveling lawn sprinkler, the combination with a rotating sprinkler head having nozzles from which the water is delivered in a circle across the path of travel of the sprinkler head, and means for delivering water to the sprinkler head, of means for delivering a greater quantity of water through said nozzles to one side of the path of travel of the sprinkler head than to the other.

3. In a rotatable water sprinkler, the combination with a hollow stem to which a supply of water under pressure is delivered, a sprinkler head rotatably mounted on the stem, means for delivering a continuous flow from within the stem to the sprinkler head, which flow is lessened throughout a portion of the sprinkler head's rotation.

4. In a rotatable water sprinkler, the combination with a hollow stem to which a supply of water under pressure is delivered, a sprinkler head rotatably mounted on the stem, means for delivering a continuous flow of water from within the stem to the sprinkler head, and means for lessening the flow through a portion of the sprinkler head's rotation.

5. In a rotatable water sprinkler, the combination with a hollow stem to which a supply of water under pressure is delivered, said stem having a port on one side, a sprinkler head rotatably mounted on the stem, which head has a series of jet apertures from the bearing outward, which apertures thus receive water from the stem while passing the port thereof, and means for admitting a lessened supply of water to the jet apertures of the sprinkler head when said apertures are not opposite the port.

6. In a rotatable water sprinkler, the combination with a hollow stem to which a water service is delivered, said stem having a lat-

eral port on one side the ends of which port are connected together around the other side of the stem by a limiting groove, a sprinkler head rotatably mounted on the stem, said head having a series of jet apertures extending from the bearing outward, which apertures will thus receive a full supply of water while passing the lateral port, and a restricted supply while passing along the groove.

7. In a rotatable traveling lawn sprinkler, the combination with a rotating circular head having reaction jet nozzles and means for delivering the water continuously to said jet nozzles, of means for effecting a greater delivery of the water through said jet nozzles to one side of the path of travel of the sprinkler than to the other.

8. In a rotatable traveling sprinkler, the combination with a rotating sprinkler head having a series of water discharging ducts, and means for delivering a continuous supply of water to certain of said ducts around the axis of the sprinkler head, of means for augmenting the water supply delivered to said ducts at one side of the sprinkler head for the purposes specified.

In testimony whereof we affix our signatures.

WILLIAM C. TODD.
JAMES W. POMEROY.