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WATER SPRINKLER

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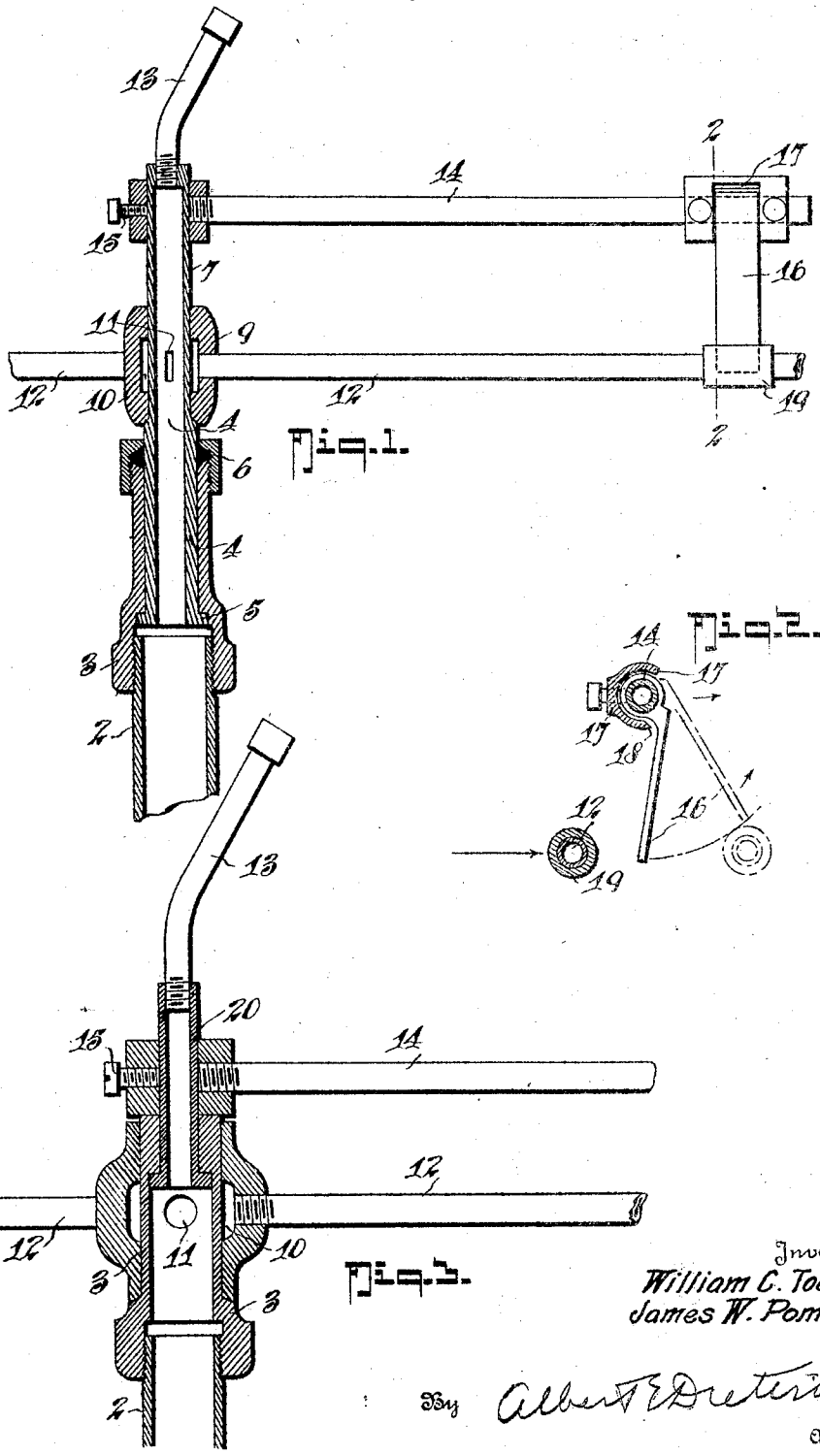


Fig. 1.

Fig. 2.

Fig. 3.

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WATER SPRINKLER.

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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 Water Sprinklers, of which the following is a specification.

This invention relates to a water sprinkler of that class wherein a reaction sprinkler head is rotatably mounted on a hollow central stem through which it derives its water supply, which central stem, or another coaxial with it, is independently rotatable so that a jet or jets of water projected upward and outward from the central stem rotating slowly may be projected outward beyond the zone sprinkled by the reaction sprinkler.

The improvements are particularly directed to a novel means for rotating the central stem from the rotation of the reaction sprinkler head in a simple direct manner without the complication of a gear-connected drive.

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 vertical section through the device.

Fig. 2 is a section on the line 2—2 in Fig. 1, and

Fig. 3 shows a modification in the manner of mounting the reaction sprinkler head and the central stem.

In these drawings 2 represents the upper end of an upright pipe connected to a suitable water service. On this pipe 2 is secured a connection 3 in which is rotatably mounted the hollow central stem 4. This stem 4 has a collar 5 at the lower end and passes gland-packed at 6 through the upper end of 3. Beyond this gland nut the stem is reduced as at 7 to form a seated bearing for the hub 9 of the reaction sprinkler.

This hub 9 is chambered as at 10 intermediate its ends and receives its water supply from within the central stem through apertures 11. From this hub 9 radially project the customary jet pipes 12, the ends of which are backwardly turned or have backwardly directed jet nozzles to afford the required reaction impulse to rotation.

In the upper end of the reduced portion 7 of the stem 4 is secured a jet pipe 13, the axis of which is angularly directed outward from that of the stem, and between this jet pipe and the hub 9 of the reaction sprinkler, an arm 14 is secured at 15 to the upper end of the central stem to project radially outward from it. On this arm 14 an impact member 16 is mounted to depend and swing freely in the path of movement of one or more of the tubes 12 of the reaction sprinkler head.

A member 17 is secured on the arm 14 to check the swinging movement of the member 16 beyond what is necessary to permit the tube 12 of the reaction sprinkler head to pass, as shown in Fig. 2.

With this device, as the reaction sprinkler 9, 12 mounted to turn freely on the reduced end 7 of the central stem 4 rotates, one or more of its radial tubes 12 will strike the lower end of the swinging member 16 as it passes under it, but as the member 16 swings freely, that engagement does not in itself impart any movement to the radial arm 14 or the central stem 4, 7 to which that arm is secured, but the impact of the arrested swing of the member 16, as it strikes the limiting check 17, which is secured to the arm 14, imparts a fractional rotational impulse to the arm 14 and the central stem 4, 7 in which the outwardly directed jet tube 13 is secured.

An intermittent fractional movement of rotation is thus imparted to the central jet tube 13, the jet from which is thus projected beyond the zone of the reaction sprinkler.

The amount of the impulse imparted to the central jet tube may be varied by varying the position of the check 17, permitting more or less swing beyond clearance of the tube 12, or by varying the position of the swinging member 16 on the radial arm from the axis of rotation.

Attention is drawn to the fact that there is no direct driving connection between the reaction sprinkler 9, 12 and the central jet tube 13 as the impulse to rotate the central jet tube is not derived from the mechanical engagement of the tube 12 with the pendent member 16, but from the velocity with which the end of the pendent member is struck, which throws the pendent member against the check 17.

It is interesting to note that if the check 17 is removed beyond the forward swinging limit of the member 16, as that member

falls back and is allowed to strike a check at 18, that check will give a rotational impulse to the central stem in a direction opposite to that in which the reaction sprinkler is rotating.

A sleeve 19 of hard rubber or the like may be secured on the tube 12 to avoid the clicking noise of the impact.

The pendent member 16 may not hang low enough to make actual contact with a tube 12 of the reaction sprinkler or attachment thereto, in which case the pendent member will receive its swinging impulse from a jet of water delivered from one of the tubes 12 as it passes under, in the manner set forth in Patent No. 1,484,684 granted on the 26th February 1924.

In Fig. 3 the hub 9 of the reaction sprinkler is mounted directly on the connection 3 and derives its water supply therethrough, and the central stem 20 in which the jet tube 13 is secured, is rotatably mounted in the upper end of 3, with the arm 14 from which the swinging member 16 depends, secured, as in Fig. 1, intermediate the jet tube 13 and the reaction sprinkler 9. The means for driving the hollow central stem 20 with its jet tube 13, which is the essential feature of the invention, is the same as described in relation to Figs. 1 and 2.

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. A water sprinkler of the class described, comprising in combination, a hollow stem to which water under pressure is admitted, a reaction sprinkler mounted on the stem and deriving its water supply therethrough, a central hollow stem independently rotatable about the same axis, a member secured to the central stem to project over a rotatable part of the reaction sprinkler, a swinging member mounted on the projecting member, a check secured to the projecting member to limit the swing, and means for imparting movement to the swinging member against its limiting check whereby an intermittent fractional movement is imparted to the central stem.

2. A water sprinkler of the class described, comprising in combination, a hollow stem to which water under pressure is admitted, a reaction sprinkler mounted on the stem and deriving its water supply therethrough, a central hollow stem independently rotatable about the same axis, a member secured to the central stem to project over a rotatable part of the reaction sprinkler, a member mounted on the projecting member to swing over and in the path of a rotating part of the reaction sprinkler, a check secured to the projecting member to limit the swing, whereby as the reaction sprinkler rotates the swinging member will be thrown against its check, and will impart an intermittent fractional rotation to the central stem.

3. A water sprinkler of the class described, comprising in combination, a hollow stem to which water under pressure is admitted, a reaction sprinkler mounted on the stem and deriving its water supply therethrough, a central hollow stem independently rotatable about the same axis, a member secured to the central stem to project over a rotatable part of the reaction sprinkler, a member mounted on the projecting member to swing over and in the path of a rotating part of the reaction sprinkler, a check secured to the projecting member to limit the swing, whereby as the reaction sprinkler rotates the swinging member will be thrown againsct its check, and will impart an intermittent fractional rotation to the central stem, and a bushing on the rotatable part of the reaction sprinkler to receive the impact of the swinging member.

4. A water sprinkler of the class described comprising a hollow stem to which water under pressure is admitted, a reaction sprinkler rotatably mounted to turn on the axis of the stem and deriving its water supply from the same, a nozzle secured to turn on the axis of said stem, an arm rigidly connected with said nozzle to turn therewith, a swinging member mounted on said arm to swing on an axis in a plane at right angles to the axis of the said stem, and a check secured to said arm to limit the swing of said member to within definite limits, said reaction sprinkler having a member adapted to strike said swinging member at intervals for the purposes specified.

In testimony whereof we affix our signatures.

WILLIAM CHARLES TODD.
JAMES WILLIAM POMEROY.