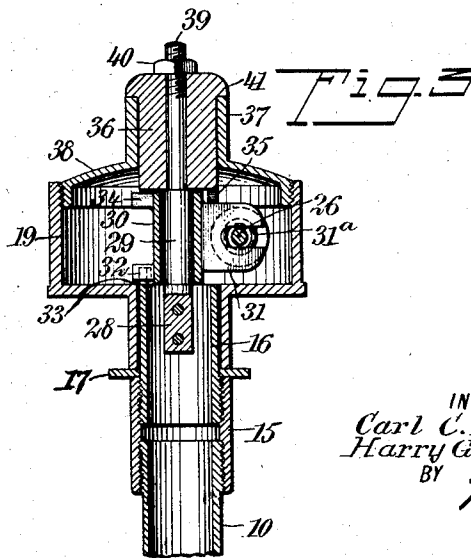
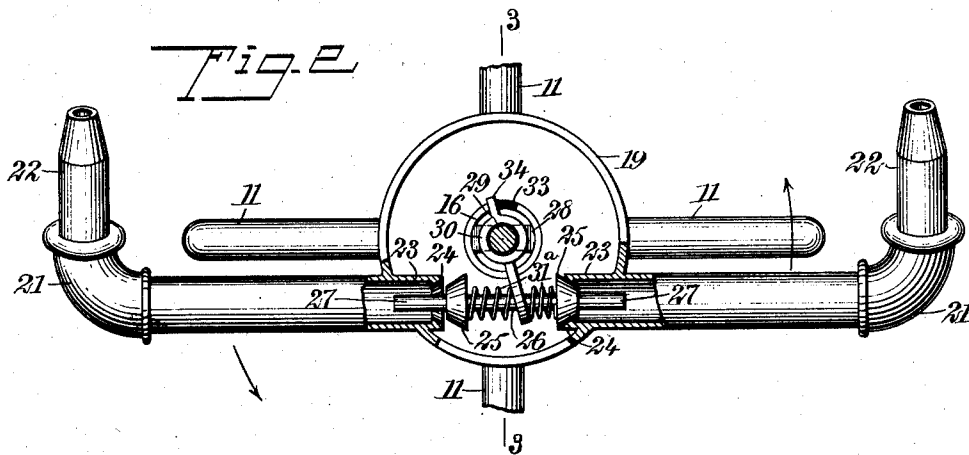
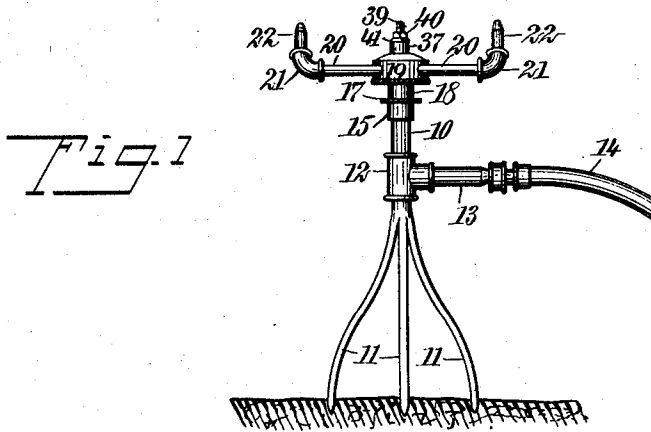


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PATENTED MAR. 5, 1907.

C. C. & H. G. RHODES.
SPRINKLER.

APPLICATION FILED MAY 10, 1905.



WITNESSES:

J. A. Propoy
S. H. C. 22

INVENTORS
Carl C. Rhodes
Harry G. Rhodes
BY

M. C. Rhodes
ATTORNEYS

UNITED STATES PATENT OFFICE.

CARL CORNELL RHODES, OF HONOLULU, TERRITORY OF HAWAII, AND
HARRY GARRETT RHODES, OF SAN FRANCISCO, CALIFORNIA.

SPRINKLER

No. 846,426.

Specification of Letters Patent.

Patented March 5, 1907.

Application filed May 10, 1905. Serial No. 259,739.

To all whom it may concern:

Be it known that we, CARL CORNELL RHODES and HARRY GARRETT RHODES, both citizens of the United States, and residents, respectively, of Honolulu, Hawaii, and of San Francisco, in the county of San Francisco and State of California, have invented a new and Improved Sprinkler, of which the following is a full, clear, and exact description.

Our invention relates to sprinkling apparatus, and more particularly to that adapted for use in watering lawns and the like.

It has for its principal object the provision of a movable sprinkler in which the direction of rotation is automatically reversed and in which the range of this movement may be varied.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 shows one embodiment of our invention in side elevation. Fig. 2 is an enlarged top plan view thereof with the cover of the head removed and parts broken away and in section, and Fig. 3 is a partial transverse vertical section on the line 3 3 of Fig. 2.

10 designates a standard having legs 11, preferably provided with pointed extremities to engage the ground and hold the apparatus firmly in position. This standard is hollow and open at its upper extremity to furnish a supply-conduit. It includes a T 12, into which is made a branch pipe 13 for connection with a hose 14. Threaded upon the upper end of the standard is a coupling 15, having screwed into it a nipple 16, about which, resting upon the coupling, is a washer 17. Upon this washer bears the neck 18 of a hollow head 19, which is thus stepped for rotation about the standard and which continues the conduit furnished thereby. From opposite sides of the head at one side of the axis extend opposite outlet-pipes 20 20, having at their outer extremities elbows 21, from which project jet-nozzles 22. These nozzles extend in the same general direction, so that the impulses produced by the delivery of the jets oppose one another, thus tending to effect rotation in opposite directions. The angle of these jet-nozzles is preferably somewhat upward from the horizontal to more effectively distribute the discharge. The jet-pipes are shown as extending into the head at 23,

where they are provided with inner conical surfaces 24, furnishing seats for similarly tapered valves 25 25. These valves have a common support in the form of a connecting-rod 26, which projects beyond the valves at 27 to aid in holding them against lateral displacement.

Across the upper extremity of the nipple 16 is supported a bridge 28, from which rises a spindle 29. Surrounding this spindle and resting upon the bridge is a hub 30, from which projects an arm or operating member 31. This arm has a longitudinal slot which embraces the rod 26, and surrounding the rod at each side of the arm and having their ends contacting therewith and with the valves are spiral springs 31*, which tend to hold the arm in a central position between the valves. From one side of the lower portion of the hub is a projection 32, which may contact with a projection 33 from the upper end of the nipple 16. At the upper portion of the hub is a projection 34 for coaction with a projection 35, depending from a plug 36, which fits with a neck or flange 37, rising from a cover or cap 38, threaded into the top of the head to furnish a closure therefor. This plug has an axial bore bearing upon a reduced end portion 39 of the spindle 29 and may be adjustably fixed in position with relation to the head by a nut 40, threaded upon the upper end of the spindle. A flange 41 upon the plug extends over the end of the neck.

Assuming the plug to be so fixed in place that its projection lies in substantially vertical alinement with the projection 33 and one of the hub projections in contact with one of these relatively fixed projections, one of the valves 25 will be held to its seat, while the other will be open. Liquid now being supplied to the standard, it flows by the bridge into the head and passes through the open jet-pipe, its pressure against the inner side of the other valve tending to more firmly hold it to its seat. The discharge of the jet from the open pipe by its reaction rotates the head in one direction, thus distributing the flow over a circular area. This continues until the opposite hub projection contacts with the companion projection either upon the nipple or plug, which forces the arm against the spring of the open valve, moving it to its seat and freeing the companion jet-pipe. The spring of the valve which is now closed is

compressed under the momentum of the rotating elements and exerts its expansive force to start the movement of the head in the opposite direction. The flow now being through the other jet-nozzle, continues this opposite rotation until contact between the other pair of projections occurs, when the operation is repeated, this taking place intermittently as long as liquid under pressure is supplied to the standard. As described a substantially complete circle has been covered by the jets. If it is desired that a less area shall be sprinkled, the nut 40 is loosened and the plug turned until its projection has moved through a greater or less angle from that of the nipple. The arm now is capable of less movement before it engages one of these projections, and in this manner any arc of rotation may be secured and the duration of flow proportionately varied.

It will be obvious that as but one jet-pipe is operating at a time the delivery will be over a greater area than when a plurality are in use, thus increasing the field of effect of the apparatus.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination with a movable conduit, having jet-outlets opposing the rotary effects of one another, of valves in the jet-outlets for intermittently directing the flow through the different outlets; and means whereby the movement of the conduit may operate said valves.

2. The combination with a movable conduit having a plurality of jet-outlets, of a valve for each outlet, and means operable by the movement of the conduit for shifting the valves.

3. The combination with a rotatable conduit having a plurality of jet-outlets, of a valve for each outlet, said valves having a common support, and means whereby the rotation of the conduit may shift said valves.

4. The combination with the standard, of a movable head rotatable thereon, means for supplying liquid to the head, opposite jet-pipes leading from the head, valves for directing the flow alternately through the jet-pipes, and means whereby the movement of the conduit may operate said valves.

5. The combination with a standard, of a

hollow head rotatable thereon, means for supplying liquid to the head, opposite jet-pipes leading from the head, movable means for closing the pipes, and contact projections carried by the standard and head for cooperating with said closing means.

6. The combination with a standard, of a hollow head rotatable thereon, means for supplying liquid to the head, opposite jet-pipes leading from the head, movable means for closing the pipes, contact projections carried by the standard and head for cooperating with said closing means, and means for adjustably fixing the position of one of the projections.

7. The combination with a standard, of a hollow head rotatable thereon, means for supplying liquid to the head, opposite jet-pipes leading from the head, a valve for controlling the opening through each pipe, and a movable member carried by the standard and cooperating with the valves.

8. The combination with a standard, of a hollow head rotatable thereon, means for supplying liquid to the head, opposite jet-pipes leading from the head, a valve for controlling the opening through each pipe, a rod connecting the valves, springs surrounding the rod, and a movable member carried by the standard and contacting with the springs.

9. The combination with a stationary tube, of a nozzle mounted to move thereon and adapted to be moved in one direction by reaction of the water issuing therefrom, said tube having an opening, means adapted to alternately connect said opening with said nozzle and to cut it off therefrom, and means for automatically moving said nozzle backwardly in its path.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

CARL CORNELL RHODES.

HARRY GARRETT RHODES.

Witnesses as to signature of Carl Cornell Rhodes:

WILL BARCLAY,

CHAS. J. COOPER.

Witnesses as to signature of Harry Garrett Rhodes:

MARK A. MILLER,

FRANK P. FUREY.