

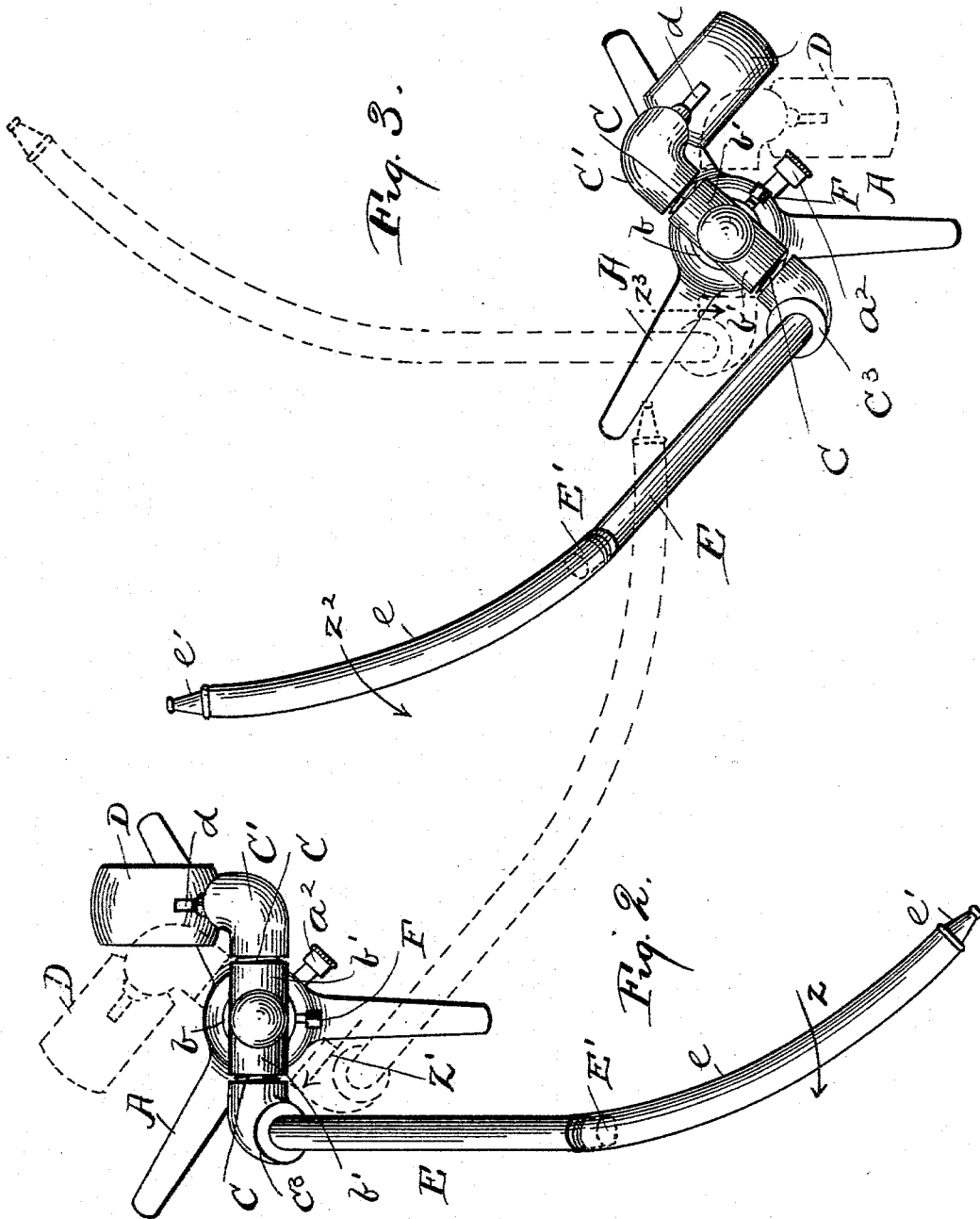
(No Model.)

2 Sheets—Sheet 2.

R. P. CREED.
LAWN SPRINKLER.

No. 494,847.

Patented Apr. 4, 1893.



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UNITED STATES PATENT OFFICE.

ROBERT P. CREED, OF CLEVELAND, OHIO.

LAWN-SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 494,847, dated April 4, 1893.

Application filed September 22, 1892. Serial No. 446,574. (No model.)

To all whom it may concern:

Be it known that I, ROBERT P. CREED, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Lawn-Sprinklers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in lawn-sprinklers; and it consists more especially in a lawn-sprinkler adapted to automatically direct its stream to every side, and that, during its operation, will continually change the direction of the stream.

My invention consists also in certain features of construction and in combination of parts hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation, partly in central vertical section, of a lawn-sprinkler embodying my invention. Figs. 2 and 3 are top plans showing the moving parts in different positions, respectively, assumed in the operation of the device, the position of parts in solid lines, Fig. 2, corresponding to that shown in Fig. 1. Figs. 4 and 5 are transverse sections, on line 4-5, Fig. 1, excepting that the position of parts in Fig. 5 correspond to that in Fig. 3. Fig. 6 is a left hand side elevation of members E and e relative to Figs. 1 and 2.

Referring to the drawings, A represents a supporting-frame or stand adapted to be placed upon the lawn to be sprinkled and comprises a centrally located upright member, a, that, at its upper end, has rotatably mounted thereon a water-chamber, B. A preferable construction is shown in Fig. 1 of the drawings, wherein the casing of the water-chamber has an annularly and downwardly flanged opening at the bottom, the flange b whereof is internally threaded to engage corresponding threads on the upper end of member a of the supporting-frame or stand and wherein said member of the supporting-stand is no more than a pipe in open relation with the aforesaid water-chamber and terminates, at its lower end, in a water-chamber, a', that is provided with a nozzle, a², for the attach-

ment of the water-supply hose or pipe (not shown).

The casing of the water-chamber, at diametrically opposite sides, has annularly and outwardly flanged openings, the flanges b' whereof are internally threaded and afford bearing for a horizontal correspondingly externally threaded pipe-section, C. Pipe C is closed at one end preferably by means of an elbow, C', that has connected therewith a depending arm d, terminating in a weight or poise D.

Pipe C, at suitable intervals, has lateral ports, C², for establishing open communication between said pipe and water-chamber B. At the opposite or discharging-end, pipe C is in open relation with an upright pipe, E, that is rigidly connected with pipe C preferably by means of an elbow, C³, pipe E and weight or poise D projecting or extending in diametrically opposite directions. To the upper end of pipe E is attached a piece of bent or curved hose or flexible tube, e, that, at its upper or free end, terminates in a discharging nozzle, e'. Member b of the casing of water-chamber B has a depending projection, b², and pipe a is provided with a laterally-projecting pin, lug or member a³ adapted to be engaged by projection b², and serve as a stop to limit the rotation of the water-chamber and attachments in either direction.

The bend or curvature in tube e is of the greatest importance as will hereinafter more fully appear. Pipe E, is preferably somewhat curved at its upper end, as at E', Fig. 1, and the curvature or bend in flexible tube e constitutes a continuation of curve or bend E'. Pipe E and weight or poise D being rigidly connected with horizontal pipe C it follows that said parts will oscillate together.

The operation of the device is as follows:— Suppose that when the water-supply is turned on the parts are thrown or actuated into the position shown in Fig. 1 and in solid lines Figs. 2 and 4, wherein pipe E and weight or poise D are tilted as shown, and wherein said flexible tube e is curved or bent so as to incline upwardly and to the right, that is, more or less in the direction of the length of the axis of oscillating pipe C, (see Figs. 1 and 2) and is also curved or bent so as to incline

more or less laterally away from said pipe in a direction opposite to that of the location of weight or poise D. (See Figs. 2 and 6.) The bend or curvature affording the first mentioned inclination is preferably in the piece of hose or flexible tube before its application, but a piece of straight hose or flexible tubing may be used and given the desired curvature or inclination after it has been attached to pipe E. The other inclination of said hose or flexible tube, hereinbefore referred to, that is, the inclination in a direction opposite to the location of weight or poise D, is obtained from the weight of the hose or tube and the nozzle thereto attached.

In the operation of the device the escape of the water at the discharging-nozzle, creates an unbalanced or back-pressure, that, owing to the inclination of hose or tube *e* upward and in the direction of the length of the axis of tube C, will cause pipe E and attachments to revolve in a direction opposite to the direction in which the discharging-nozzle presents, and referring to Fig. 1 and to solid lines Figs. 2 and 4, wherein projection *b*² of flange *b* of casing B is at the left of stop *a*³, the parts will be revolved in the direction indicated by arrow Z until projection *b*² of the casing of water-chamber B comes into engagement with the right-hand side of stop *a*³. (See dotted lines Figs. 2 and 4.) It will, therefore, be observed that in the movement of the parts just described pipe-section C will have made the greater part of a rotation in a horizontal plane, arm *d* with weight or poise D will have described a truncated cone and pipe C will have described an inverted truncated cone. The revolution of the parts in the direction indicated by arrow Z having been stopped by the engagement of member *b*² with stop *a*³, the parts will not cease to be active, for, owing to the inclination of hose or flexible tube *e* and attached nozzle in the direction upward and laterally of horizontal pipe C, opposite to the location of weight or poise D, resulting from the weight of said hose or flexible tube and attached nozzle, in addition to the action of weight or poise D, it follows that said parts will be oscillated in the direction indicated by arrow Z', Fig. 2, to the position shown in solid lines Fig. 3, whereupon the parts will again revolve but of course in a direction indicated by arrow Z², Fig. 3, the reverse or opposite direction of that first taken because the inclination of hose or tube *e* and attached nozzle is in the opposite direction, until projection or member *b*² of flange *b* of the casing of chamber B will again have engaged the left-hand side of stop *a*³ (see dotted lines Figs. 3 and 5), and arm *d* with weight or poise D will have again described a truncated cone and pipe E will have again described an inverted truncated cone, but in a direction opposite to that first hereinbefore described. The revolution of said parts having again been stopped as just described, the parts will thereupon again

oscillate, viz., in the direction indicated by arrow Z³, Fig. 3, to the position shown in Figs. 1, 2 and 4, and so on, the parts alternately revolving and oscillating, and continually changing the direction of the stream.

I would here remark that when the parts are free both to revolve and oscillate, they will revolve owing to the predomination of their tendency to revolve.

It is, of course, apparent that the office of weight or poise D is that of a counterbalance to maintain the device properly balanced so that the device, when in operation, will not be knocked down by the unbalanced or back-pressure of the water hereinbefore referred to.

Flange *b* of the casing of water-chamber B, adjacent stationary pipe *a*, is preferably provided with a lateral screw-threaded hole (not shown) for the reception of a set-screw F that is adapted to engage pipe *a* and securely lock the parts as against revolving about said pipe in case it is desired to have the parts merely oscillate in a vertical plane as shown and described, and as indicated by arrows Z' and Z³.

What I claim is—

1. The combination with a supporting stand, and a water chamber constructed to turn thereon, of an oscillating pipe located in the water chamber and in communication therewith, said pipe having an outlet projecting in one direction and a counterpoise in an approximately opposite direction, substantially as set forth.

2. In a lawn-sprinkler, the combination of a supporting-frame or stand, a water-chamber rotatably mounted on the upper end of said frame or stand and adapted to be placed in open communication with the water-supply, an upright pipe or tube in open relation with said water-chamber and connected therewith in such a manner as to swing or oscillate at right angles or approximately at right angles to the direction of rotation of the water-chamber, a stop for limiting the rotation of the water-chamber and a piece of hose or flexible tube attached to the upper end of said pipe, the arrangement of parts being substantially as and for the purpose set forth.

3. In a lawn-sprinkler, the combination of a supporting-frame or stand, a water-chamber rotatably mounted on the upper end of said frame or stand and adapted to be placed in open communication with the water-supply, an oscillating horizontal pipe or tube extending through and having bearing in the inclosing casing of the water-chamber at diametrically opposite sides of the chamber, lateral ports in said pipe or tube establishing open relation between the latter and the aforesaid water-chamber, an upright pipe in open relation and operatively connected with the one end of said horizontal oscillating tube or pipe, a suitable weight or counterbalance connected with the other end of said horizontal pipe, a

stop for limiting the rotation of the water-chamber in either direction and a piece of hose or flexible tube attached to the upper end of said upright pipe, substantially as and
5 for the purpose set forth.

4. In a lawn-sprinkler, the combination of a supporting-frame or stand, a water-chamber rotatably mounted on the upper end of said frame or stand and adapted to be placed in
10 open communication with the water-supply, the inclosing-casing of said water-chamber, at diametrically opposite sides having annularly and outwardly flanged lateral openings with the flanges internally threaded, a hori-
15 zontal oscillating pipe correspondingly externally threaded and having bearing in said flanges and being closed at one end, lateral ports for establishing open relation between said pipe and the aforesaid water-chamber, a
20 stop for limiting the rotation of the water-chamber in either direction, an upright pipe operatively connected with the open end of said horizontal oscillating pipe, a curved hose or flexible tube attached to the upper end of
25 said upright pipe, and a suitable weight or counterbalance connected with the closed end of said horizontal pipe, the curve or bend in the aforesaid hose or flexible tube and the arrangement of parts being substantially as and
30 for the purpose set forth.

5. A water sprinkling device for hose comprising a supporting frame a reversible rotatably supported water chamber, a discharge

pipe mounted to turn axially in the water chamber, said pipe, in open communication 35 with the water chamber, means for limiting the turns of the water chamber, and a counterbalance connected with the pipe for rocking the latter each time the water chamber reverses, substantially as set forth.

6. In a lawn-sprinkler, the combination of a supporting-frame or stand, a water-chamber mounted on the upper end of said frame or stand and adapted to be placed in open communication with the water-supply, an oscillating horizontal pipe or tube extending
45 through and having bearing in the inclosing casing of the water-chamber at diametrically opposite sides of the chamber, lateral ports in said pipe or tube establishing open relation between the latter and the aforesaid water-chamber, an upright pipe in open relation and operatively connected with the one end of said horizontal oscillating tube or pipe, a suitable
50 weight or counterbalance connected with the other end of said horizontal pipe, and a piece of hose or flexible tube attached to the upper end of said upright pipe, substantially as and for the purpose set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 2d day of August, 1892.

ROBERT P. CREED.

Witnesses:

C. H. DORER,
WARD HOOVER.