

April 22 , 1924.

1,491,253

O. R. BARNES

AUTOMATIC WATER SPRINKLER

Filed Aug. 27, 1920

2 Sheets-Sheet 1

Inventor

Otho Raymond Barnes

Pierre Barnes

Attorney

April 22, 1924.

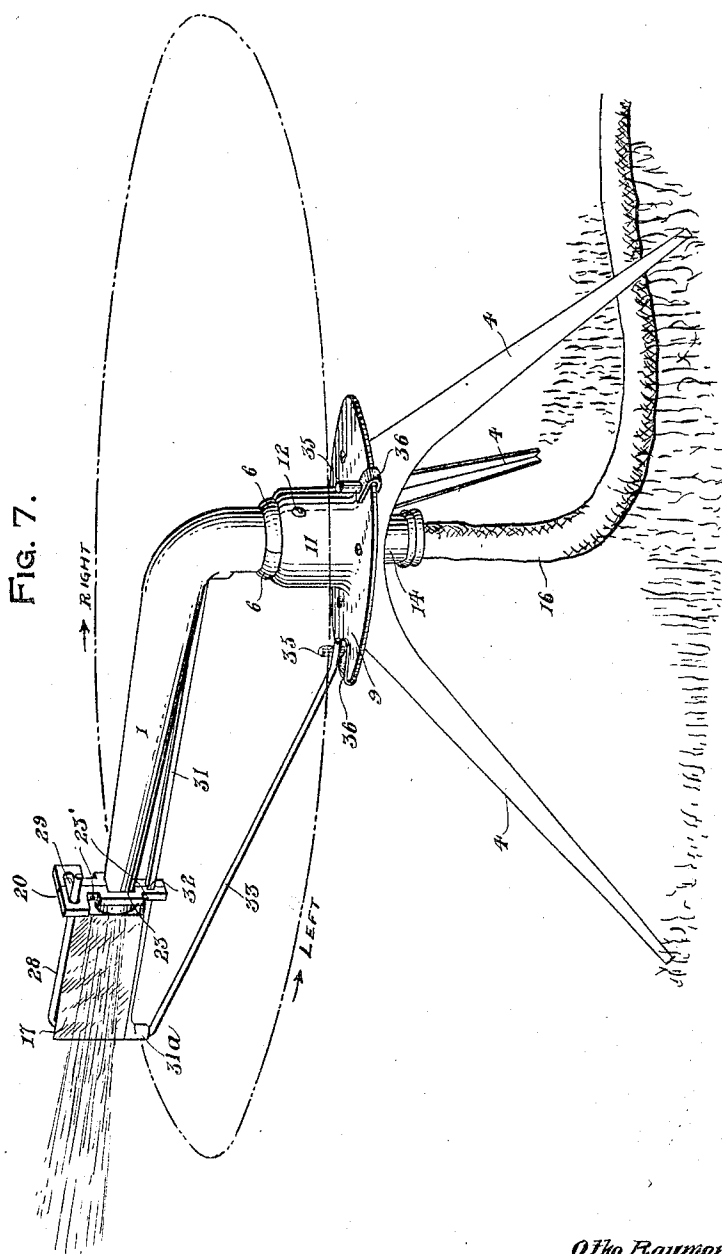
1,491,253

O. R. BARNES

AUTOMATIC WATER SPRINKLER

Filed Aug. 27, 1920

2 Sheets-Sheet 2



Inventor

Otto Raymond Barnes

By *Otto Barnes*

Attorney

UNITED STATES PATENT OFFICE.

OTHO RAYMOND BARNES, OF SEATTLE, WASHINGTON.

AUTOMATIC WATER SPRINKLER.

Application filed August 27, 1920. Serial No. 406,503.

To all whom it may concern:

Be it known that I, OTHO RAYMOND BARNES, a citizen of the United States of America, residing at 4313 Eleventh Avenue NE., Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Automatic Water Sprinklers, of which the following is a specification.

My invention relates to automatic water sprinklers adapted for watering lawns and the like.

The foremost object of my invention is to produce a water sprinkler of the automatic type wherein the direction of the flow of water will be controlled automatically by the force of the water leaving the sprinkler nozzle and acting upon a means externally of the nozzle for producing this effect.

A further object of this invention is to provide means for automatically causing the sprinkler nozzle to move in a clockwise direction and wherein there is also provided an adjusting means for varying the degree of movement in a clockwise direction of the nozzle and also causing the same to move in a counterclockwise direction.

With the above general objects in view and others that will appear as the nature of the invention is better understood, the same consists in the novel form, combination and arrangement of parts hereinafter more fully described in connection with the accompanying drawings and in which like characters of reference indicate similar parts throughout the several views.

In the drawings,

Figure 1 is a side elevational view of my device partly in section and partly broken away.

Figure 2 is an enlarged detail view of the mechanism carried by the forward end of the sprinkler nozzle for controlling the movement of the nozzle by the action of the water against said mechanism.

Figure 3 is an enlarged perspective view of my two-piece coupling collar whereby the water inlet end of the nozzle member is rotatably mounted within a sleeve which carries an integral annular plate member rigidly attached to a support of the tripod type or the like.

Figure 4 is a detail view of the above mentioned sleeve and annular plate, said view also showing detachable means carried

by the annular plate for controlling the degree of oscillatory movement of the sprinkler nozzle.

Figure 5 is a cross sectional view of a supporting clamp carried by the forward end of the sprinkler nozzle for supporting the water contacting plate which causes movement of the nozzle in opposite directions.

Figure 6 is a diagrammatical view of the water contacting plate showing in full and dotted lines the positions of this plate adjacent the outlet end of the sprinkler nozzle, said different positions being occasioned by the above mentioned detachable means carried by the annular plate of the coupling collar, and

Figure 7 is a perspective view of my device in operation.

Briefly described, the present device consists of a water nozzle of the conventional type rotatably supported in any preferable design of stand or support. For purposes of illustration, I have disclosed a support of the well known tripod type. Supported upon and in a horizontal plane with the outlet end of the sprinkler nozzle is a metallic water contacting plate. This plate is pivoted at its rear end to a support and is allowed a slight degree of movement as shown by dotted lines in Figure 6. The action of the water pressure striking against the opposite sides of this plate will cause the nozzle to move in a direction opposite to the side of the plate upon which the water contacts. For presenting the opposite sides of this plate to the action of the water pressure, I provide an arm operatively connected to this plate, which arm is relatively long and runs substantially parallel beneath the sprinkler nozzle. Detachably positioned upon the nozzle supporting structure, there is provided two vertical pin or lug members for alternately contacting with the extreme end of the trip arm. These pin or lug members may be positioned at any predetermined points apart for controlling the degree of movement of the nozzle. It will thus readily be seen that when the device is operating and the nozzle is moving to the right as shown in Figure 7, the trip arm will strike against one of the vertical pins and cause the swinging plate to move across the path of the water for presenting its opposite face to the water pressure. This action causing the sprinkler nozzle to

move in an opposite direction until the trip arm engages with the second pin on the supporting structure causing a reversal of the action.

Referring more in detail to the several views, there is shown a sprinkler nozzle 1 having inlet and outlet ends 2 and 3 respectively. As a means for rotatably supporting the nozzle 1 upon a conventional type of tripod stand 4, I provide ribs 5 at the inner or inlet end thereof and surrounding the inlet end of the nozzle is a two-piece collar member 6 having corresponding ribs 7 adjacent its upper end. Bolted to the stand 4, by the medium of the bolts 8 is an annular plate member 9 having a central axial opening 10 therein. Surrounding this opening and projecting upwardly therefrom is a sleeve 11 integral upon the plate 9 which sleeve receives the two-piece collar 6 and the inlet end 2 of the nozzle 1. The adjacent sides of the collar 6 and sleeve 11 are tapered as shown in Figures 1, 3, and 4 to provide a close fit between these members, and the collar is securely held within the sleeve by the thumb screws 12. Adjacent the lower end of the two-piece collar 6, there are provided internal screw threads 13 for detachably receiving the upper screw threaded end of a nipple 14. The extreme lower end of the nipple is ribbed as at 15 for detachably receiving a suitable type of flexible hose 16 as shown in Figure 7.

Forwardly of the outlet end 3 of the nozzle 1, I have provided a swinging water contacting plate 17. As a means for supporting the plate upon the nozzle 1, the nozzle is squared at 18 and is provided with an annular flange 19 upon its extreme forward end. Rigidly positioned upon the squared portion 18 of the nozzle 1 is a supporting clamp 20 comprising jaws 21 and 22. Intermediate the ends of each jaw member, the same are cut away to provide a square opening 23 and as clearly shown in Figures 1 and 2, these jaw members are clamped upon the squared portion 18 of the nozzle 1 by the set screws 23'.

The aforementioned swinging plate 17 is split at 24 effecting side walls 25 and 26 and either welded or soldered therebetween is an upright rod 27. The upper end of this rod is forwardly bent at 28 and runs parallel with the upper edges of the side walls 25 and 26 of the plate 17. This portion of the rod is likewise welded or soldered to the swinging plate and projects a slight distance beyond the forward edge of the plate 17 into an elongated opening 29 formed in the jaws 21 and 22 of the supporting clamp 20. It will thus readily be seen that the swinging movement of the plate 17 will be limited to the positions as shown by dotted lines in Figure 6. Screw threadedly mounted in the nozzle 1 at 30 is an

angular supporting bar 31 which is braced adjacent its forward end within an angular opening 32 of the jaws 21 and 22 of the supporting clamp 20. Upon the forward end of the rod 31 is provided an enlargement 31^a having a vertical opening therein for receiving the upright rod 27 and depending from this rod 27 is a downwardly inclined extension 33. The extension 33 is bent upwardly so as to provide a horizontal end portion 34 which overlies the outer edge of the aforementioned annular plate 9. Detachably positioned at any predetermined points upon the annular plate 9 are two upright pins or lugs 35 integrally carried by spring clips 36. The end 34 of the rod 33 is adapted to alternately contact with these lug members for shifting the plate 17 into dotted line positions as shown in Figure 6.

What is claimed as new is:

1. In a device of the class described, a support embodying legs, an annular plate secured to said legs, and a sleeve formed integrally with said plate, a collar positioned within said sleeve, a nozzle rotatably mounted in said collar, a hose connection secured to said collar, a two part clamp secured to the discharge end of said nozzle, a supporting bar associated with said nozzle and clamp, an upright bar having a depending extension pivotally mounted in said supporting bar and loosely engaging said clamp, a deflector fixed to the upright bar and actuated thereby, and adjustable pins carried by the annular plate and adapted to operatively engage said depending extension for actuating said deflector to cause the nozzle to rotate in said collar.

2. In a device of the class described, a support embodying legs, an annular plate secured to said legs, and a sleeve formed integrally with said plate, a two piece collar positioned within said sleeve, a nozzle having its inlet end rotatably mounted in said collar, a hose connection secured to said collar, the said nozzle being squared at a point adjacent its outer end, a two part clamp secured to the squared portion of the nozzle, the said clamp forming an elongated opening above said nozzle, a supporting bar associated with said nozzle and clamp, an upright bar having a depending extension pivotally mounted in said supporting bar and loosely engaging said clamp, a deflector fixed to the upright bar and actuated thereby, and adjustable pins carried by the annular plate and adapted to operatively engage the depending extension for actuating said deflector to cause the nozzle to rotate in said collar.

3. In a device of the class described a support embodying legs, an annular plate secured to said legs, and a sleeve formed integrally with said plate, a two piece collar

positioned within said sleeve, a nozzle having its inlet end rotatably mounted in said collar, a hose connection secured to said collar, the nozzle being squared at a point adjacent its outlet end, a two part clamp secured to the squared portion of the nozzle, the said clamp forming an elongated opening above said nozzle, a supporting bar associated with said nozzle and clamp and having a vertical opening formed in its outer end, an angular member journaled in said bar, said member embodying a vertical portion journaled in said opening, an angularly arranged upper portion that loosely engages the elongated opening in said clamp and an angularly arranged relatively large lower portion having its free end positioned above the said annular plate, a deflector plate fixed to the vertical portion of said member, and adjustable pins carried by the annular plate and adapted to operatively engage the relatively large lower portion for actuating said deflector plate to cause the nozzle to rotate in said collar.

OTHO RAYMOND BARNES.

Witnesses:

C. A. PARKS,
JOHN H. BARNES.