

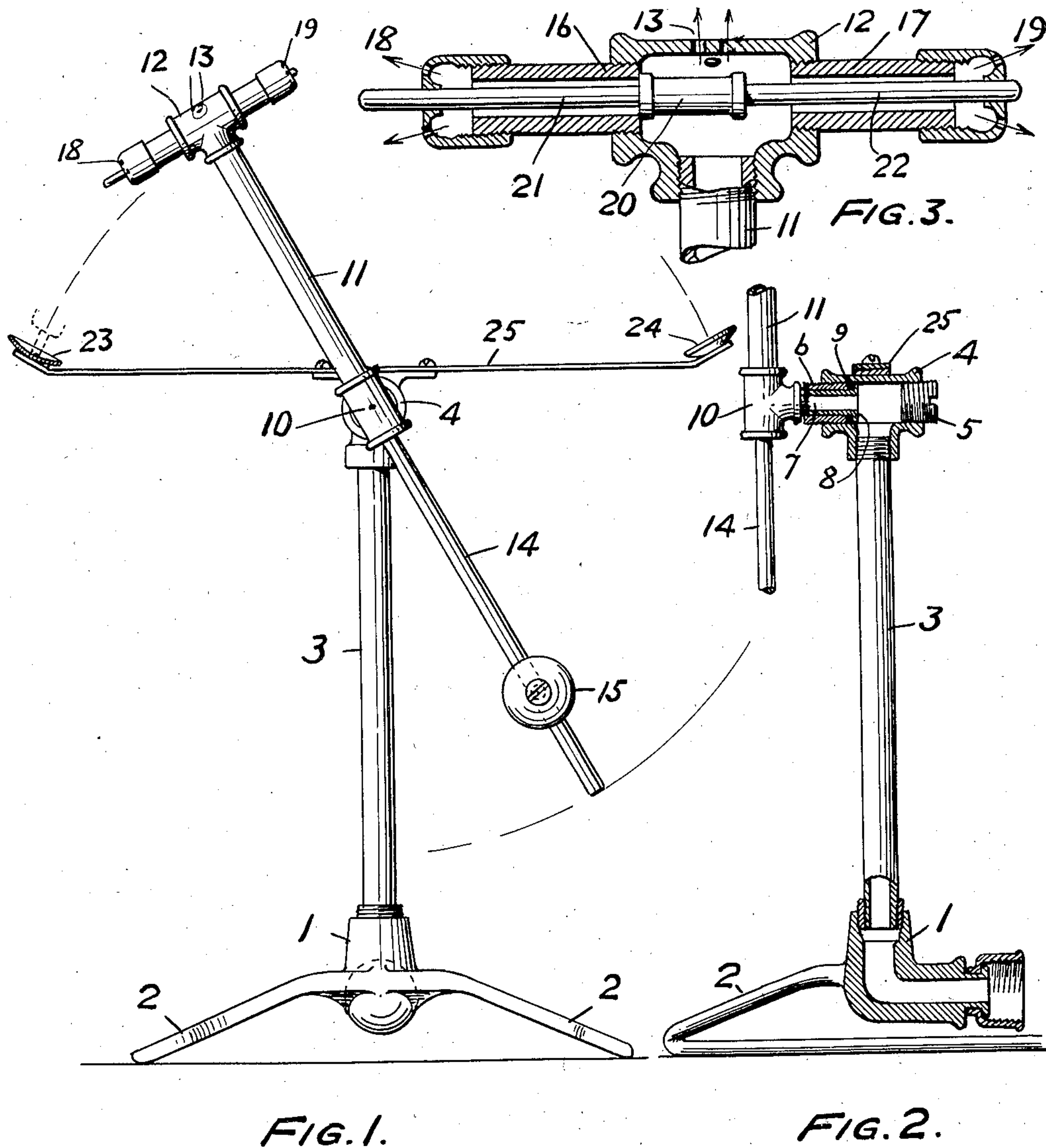
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O. WIEDERHOLD

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OSCILLATING SPRINKLER

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WITNESS:

*W. F. Mitchell*

INVENTOR

*Oscar Wiederhold*

BY

*Augustus B. Stoughton*  
ATTORNEY.



## UNITED STATES PATENT OFFICE

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## OSCILLATING SPRINKLER

Oscar Wiederhold, Skillman, N. J.

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6 Claims. (Cl. 299—71)

The object of my invention is to provide an improved sprinkler for lawns, gardens, or the like. This sprinkler is mounted so as to operate by oscillation and has the following advantages:

5 It will sprinkle a square piece of ground.

On account of the oscillating motion, the water is broken up into finer drops, and is more thoroughly aerated.

10 The sprinkler will sprinkle a larger area because of the oscillating motion, and because the water is delivered in upward and angular directions.

The water comes down in a fine spray, and will not pack the ground or cause it to become hard.

15 It has been found by test that my novel sprinkler will cover from about one-third to one-half more area than prior sprinklers with which I am familiar.

20 More particularly, my sprinkler consists of a hollow support and a head mounted for oscillation about a horizontal axis on said support and having perforations at one end thereof, a weight connected to said head and on the opposite side of the axis of oscillation, a pair of outlets mounted adjacent said head, a valve structure controlling the flow of water to said outlets, and targets for reversing the direction of motion of and for starting the oscillation of said head by the re-action of the water flowing from said outlets to said targets and to actuate the valve structure by contact therewith.

In the drawing:

35 Fig. 1 is a front elevation of my device, with a part in vertical cross-section.

Fig. 2 is a side elevation of my device, with parts broken away and parts in vertical cross-section.

40 Fig. 3 is a view in detail through the head of the sprinkler in vertical cross-section.

In that embodiment of my device chosen for description and illustration, my device is shown as consisting of a hollow base 1 having a pair of runners or supports 2 connected thereto. Base 1 supports a stem 3 at the upper end of which is mounted a T 4, one end of which is closed by a plug 5 and into the other end of which enters a bushing 6. Tube 7 is carried within the bushing 6 and has at its inner end a flange 8. Between flange 8 and the end of bushing 6 is mounted a washer 9 of flexible material, such as leather. At its outer end, tube 7 engages with a second T 10 which carries at its upper end a rocker arm 11 on which is mounted at the upper end a head 12 in the shape of a T. Head 12 has on its upper surface perforations 13, arranged transversely of the surface of the head so as to provide a plurality of jets of water substantially in alignment with the axis of oscillation. At its lower end, T 10 carries a rod 14 having a weight 15 mounted thereon.

Connected to head 12 are a pair of nipples 16 and 17 whose ends form valve seats and which have outlets 18 and 19 therein. Within head 12, and co-operating with the inner faces of the valve seats on one end of each nipple 16 and 17, is mounted a valve 20 having valve-stems 21 and 22 projecting through nipples 16 and 17, respectively.

On a convenient part of support 1, such as T 4, there are mounted two concave or saucer-shaped pieces 23 and 24 as by means of an arm 25. The saucer-shaped pieces 23 and 24 are located at the same distance from the axis of oscillation as is the head 12.

The operation of my device is as follows: Water 15 or other liquid to be sprayed enters the support and is led to the tube 7 which forms an oscillating part of the sprinkler. Because of the pressure of the water within T 4, tube 7 is pressed against the inner end of bushing 6, so that washer 9 is compressed between flange 8 and the inner end of bushing 6. Water is led through rocker-arm 11 and escapes in a substantially fan-shaped spray through outlets 13. Valve 20 is intended to be closed against either valve seat 16 or 17. 20 The water thus escapes through the outlet 18 or 19, which is open. Upon movement of the head 12 of the sprinkler, valve seat 16 or 17 is moved toward piece 23 or 24. The water issuing from the newly-opened outlet 18 or 19 reacts with the piece 23 or 24 and throws the oscillating parts of the sprinkler in the opposite direction. This causes the projecting valve-stem 21 or 22 to contact with the adjacent piece 23 or 24, and to thereby close the opposite outlet 18 or 19 and open the adjacent outlet 19 or 18. The flow of water through the newly-opened outlet reacts with the piece 23 or 24, thus reversing the direction of motion and starting the oscillation of the oscillating parts of sprinkler in the opposite directions. The discharge of the jets into the air completes the oscillations. Weight 15 is adjustable on bar 14 to control the speed with which the head oscillates, weight 15 being adjusted in accordance with the pressure applied to the sprinkler.

I do not intend to be limited save as the scope of the prior art and of the attached claims may require.

I claim:

1. An oscillating sprinkler comprising, a head into which water is introduced and which is mounted for oscillation in a non-horizontal plane about an axis, said head having outlets therein through which fluid can escape from said head in substantially the plane of oscillation to move the head in opposite directions, a valve co-operating with said outlets to close one and to open the other and having portions projecting from said head, and stationary pieces located at the same



distance from said axis, as said head and at the ends of the path of travel of said head, and in the path of the discharge from one or the other of said outlets when said head is at one end of its path of travel, said stationary pieces constituting means for operating said valve and stops for limiting the movement of said head.

2. An oscillating sprinkler comprising, a head into which water is introduced and which is mounted for oscillation in a non-horizontal plane about an axis, said head having outlets therefrom in opposite sides thereof and of which one is effective to discharge water for turning the head in one direction and of which the other is effective for turning the head in the opposite direction, a valve mounted in said head and controlling said outlets to close one and to open the other, valve stems projecting from said head in either direction adjacent said outlets, and stationary pieces located the same distance from said axis as said head and at the ends of the path of travel of said head and in the path of the discharge from one or the other of said outlets when said head is at one end of its path of travel, said stationary pieces constituting means for actuating said valve stems and said valve and constituting stops for said head.

3. A sprinkler comprising in combination a hollow support through which water is supplied, a hollow head receiving a supply of water and mounted on the support for oscillation about a horizontal axis and having oppositely disposed outlets for alternately discharging jets of water in opposite directions in substantially the plane of oscillation of the head to oscillate the head about said axis, a valve mounted in and projecting in opposite directions in substantially said plane beyond the head and adapted to close one and open the other of said outlets to oscillate the head, and stationary pieces carried by the support and disposed respectively in the path of travel of the projecting valve ends and in line with the jets, whereby one of said stationary pieces co-operates with one of said projecting valve ends to open one of said outlets, thereby causing the emission of a jet of water through said outlet, said jet impinging upon said stationary piece and aiding in causing a reversal in the direction of movement of said head, and the other of said stationary pieces co-operates with the other projecting valve end to open the other outlet, thereby causing the emission of a jet of water through said other outlet, said jet impinging upon said other stationary piece and aiding in causing another reversal in the direction of movement of said head.

4. An oscillating sprinkler comprising, a head mounted for oscillation and having an outlet for water adapted to provide a jet of water transverse to the axis of head, a support on which said head is mounted for oscillation about a horizontal axis, nipples having valve seats therein mounted on said head for oscillation on said support and projecting in opposite directions and having outlets therefrom adapted to discharge substantially in the plane of oscillation, a valve mounted within said head and co-operating with said valve seats so as to close off one or the other of said outlets, a valve-stem projecting in opposite directions in substantially the plane of oscillation beyond the ends of said nipples and connected to said valve, and stationary pieces, one of said stationary pieces co-operating with one portion of said valve-stem to open one of said outlets, thereby causing

a spray of water from said outlet, said spray of water falling upon said stationary piece and aiding in causing a reversal in the direction of movement of said head, and the other of said stationary pieces co-operating with another part of said valve-stem to open the other of said outlets, thereby causing a second spray of water from said other of said outlets, said second spray of water falling upon said other of said stationary pieces and aiding in causing another reversal in the direction of movement of said head.

5. An oscillating sprinkler comprising, a support, a horizontal bushing mounted in said support, a tube mounted in said bushing for turning movement and having a flange at its inner end opposite the inner end of said bushing, a washer mounted between said bushing and said flange, a head mounted for oscillating movement on said tube and having perforations therein, a weight connected to said head on the opposite side of the axis of oscillation, nipples having valve seats thereon mounted adjacent said head and projecting in opposite directions and having outlets therein for discharging in substantially the plane of oscillation, a valve mounted in said head and co-operating with said valve seats to close one or the other of them, a valve-stem projecting in opposite directions beyond the ends of said nipples and connected to said valve, and concave stationary pieces, one of said stationary pieces co-operating with one portion of said valve-stem to open one of said outlets, thereby causing a spray of water from said outlet, said spray of water falling upon said stationary piece and aiding in causing a reversal in the direction of movement of said head, and the other of said stationary pieces co-operating with another part of said valve-stem to open the other of said outlets, thereby causing a second spray of water from said other of said outlets, said second spray of water falling upon said other of said stationary pieces and aiding in causing another reversal in the direction of movement of said head.

6. An oscillating sprinkler comprising, a support, a head into which water is introduced and which is mounted for oscillation about a horizontal axis on said support, a weight connected to said head on the opposite side of said axis of oscillation for limiting the speed of oscillation, nipples having valve seats therein mounted on said head and projecting in opposite directions and having outlets therein discharging substantially in the plane of oscillation and of which one is effective to turn the head in one direction and of which the other is effective to turn the head in the opposite direction, a valve co-operating with said valve seats and projecting beyond the ends of said nipples to close one or the other of the outlets therein, and stationary pieces, one of said stationary pieces co-operating with a projecting portion of said valve to open one of said outlets, thereby causing a spray of water through said outlet, said spray engaging said stationary piece and aiding in causing a reversal in the direction of movement of said head, and the other of said stationary pieces co-operating with another projecting portion of said valve to open the other of said outlets, thereby causing a second spray of water through said other outlet, said second spray engaging said other stationary piece and aiding in causing another reversal in the direction of movement of said head.