M. & C. G. SCHNEIDER.

SPRINKLING DEVICE.

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1,144,070.

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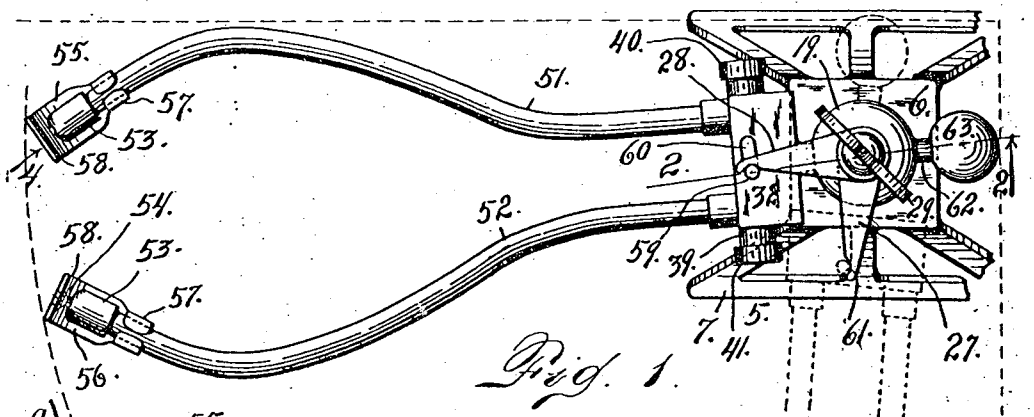


Fig. 1.

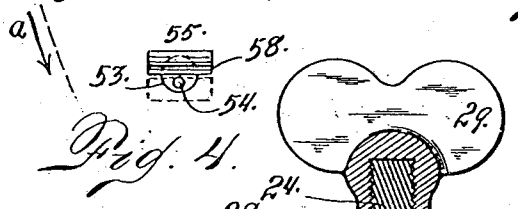


Fig. 4.



Fig. 2.

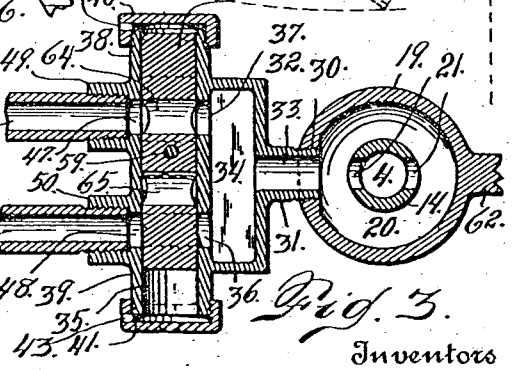


Fig. 3.

Witnesses

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# UNITED STATES PATENT OFFICE.

MAX SCHNEIDER AND CLARA G. SCHNEIDER, OF DENVER, COLORADO.

## SPRINKLING DEVICE.

1,144,070. Specification of Letters Patent. Patented June 22, 1915.

Application filed December 14, 1914. Serial No. 877,155.

*To all whom it may concern:*

Be it known that we, MAX SCHNEIDER and CLARA G. SCHNEIDER, the said MAX SCHNEIDER being a subject of the Emperor of Germany and the said CLARA G. SCHNEIDER being a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Sprinkling Devices; and we do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in lawn sprinklers, in which but two sprinkler arms are employed, the said arms being arranged adjacent each other and parallel for a short distance, then curved away from each other, and finally curved toward each other at their outer extremities, both arms adapted to oscillate in unison and operate alternately instead of simultaneously. Adjustable fingers are mounted upon the stationary stem of the device which coöperate with a valve member located in a casing, the latter having horizontally disposed sprinkling arms projecting therefrom and being rigidly connected with a sleeve rotatably mounted upon the said stationary stem, whereby when water is introduced, the valve is reciprocated to direct the stream of water first through one sprinkler arm then shut it off from that arm and direct the stream through the other sprinkler arm, thus rotating the said sleeve back and forth and producing an oscillating movement to the sprinkler arms and valve mechanism.

An important feature of our invention lies in the fact that the adjustable fingers can be set so that the sprinkler arm and valve mechanism can oscillate in an arc of any predetermined length, said arc having a radius equal to the distance from the center of the stationary stem to the outer extremities of the sprinkler arms. It must, of course, be understood that the water can be discharged from the extremities of the sprinkler arms in a corresponding arc of much greater radius, depending entirely upon the form of deflectors or nozzles employed.

Having briefly outlined our improved construction, we will proceed to describe the same in detail, reference being made to the accompanying drawing, in which is illustrated an embodiment thereof.

In this drawing,—Figure 1 is a top plan view of the device, showing one adjustment of the fingers and the sprinkling mechanism at its opposite extremities of travel. Fig. 2 is a section taken on the line 2—2, Fig. 1, looking in the direction of the arrow, but on an enlarged scale. Fig. 3 is a section taken on the line 3—3, Fig. 2, looking in the direction of the arrow. Fig. 4 is an end view of a nozzle and deflector, looking in the direction of arrow 4, Fig. 1, said nozzle and deflector being mounted upon the outer extremity of each sprinkler arm, the said deflector shown in full lines above the nozzle and in dotted lines below the same.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a supporting bracket comprising a plate 6 and depending members 7. Formed integral with the plate 6 and projecting above and below the same, is a hollow elbow 8, the said elbow being curved laterally below the plate as shown at 9 and its outer extremity threaded to receive a swivel nut 10, which in turn is connected with a hose 11 for supplying water thereto. The portion 12 of the elbow above the plate 6 is perpendicular and offset inwardly a short distance above said plate, said offset part being exteriorly threaded to receive the lower extremity of a stem 13, which extremity is interiorly threaded for this purpose. The stem 13 is stationary and has an inwardly offset portion 14, said offset portion having a passage 4 therethrough, which registers with the opening through the hollow elbow 8. An interior shoulder 15 and an exterior shoulder 16 are formed by the offset portion 14. A washer 17 is located between the interior shoulder 15 and the upper extremity of the elbow portion 12, whereby a water-tight joint is formed. Upon the exterior shoulder 16 and surrounding the offset portion 14 of the stem 13, is

mounted a casing 18 adapted to rotate thereon. The central portion of the casing 18 is enlarged at 19 to form an annular chamber 20, which is in communication with the interior of the stem 13 by means of openings 21 formed in the offset portion 14 of said stem.

Above and below the enlargement 19, the casing 18 is provided interiorly with circumferential grooves 22 and 23, which are filled with suitable packing material to form a water tight joint between the casing and the stationary stem. The upper extremity of the stem 13 is formed solid and has an inwardly offset projection 24 forming a shoulder 25 slightly above the upper extremity of the casing 18, whereby the manipulation of the thumb nut 29, hereinafter described, will not hinder the casing 18 from rotating upon the stem. The exterior of the offset portion 24 is smooth for a short distance above the shoulder 25, and then exteriorly threaded for the rest of its distance. Surrounding a part of this smooth portion and adjacent the shoulder 25, is placed a washer 26. Mounted above the washer 26 are two fingers 27 and 28 provided with perforations at their inner extremities and adapted to fit loosely one above the other around the remaining portion of the smooth surface and a slight portion of the threaded surface of the offset portion 24, whereby they may be turned to any desired position. The thumb nut 29 is screwed upon the threaded extremity of the stem 13, and is adapted to lock the fingers in the desired position. The enlarged portion 19 of the casing 18 is provided with an opening 30 whose wall is threaded to receive the inner extremity 31 of a valve casing 32, said extremity being exteriorly threaded for this purpose, and having a passage 33 therethrough, one extremity of which opens into the chamber 20. The opposite extremity of the passage 32 opens into a chamber 34 located in the valve casing 32. The chamber 34 is in communication with a cylindrical chamber 35 located in the forward portion of the valve casing 32, by means of openings 36 and 37, the opposite ends of the chamber 35 protruding beyond the end walls of the chamber 34 as disclosed at 38 and 39, and having caps 40 and 41 respectively applied thereto, the caps having perforations therein as shown at 42 and 43. A cylindrical valve member 44 provided with two passages 64 and 65 is fitted in the chamber 35 and adapted to reciprocate therein, the said valve member being of suitable length for this purpose. The valve casing 32 is provided with openings 47 and 48 having forwardly projecting interiorly threaded collars 49 and 50 respectively, surrounding the same.

The inner extremity of a hollow sprinkler arm 51 is threaded into the collar 49 and the inner extremity of a second sprinkler arm 52 is threaded into the collar 50. These arms project horizontally therefrom and are approximately parallel to each other for a short distance, then curved away from each other, and finally curved toward each other at their outer extremities, the said extremities having nozzles 53 applied thereto and each nozzle provided with a perforation 54 eccentrically arranged in their outer extremities. Deflectors 55 and 56 are adjustably mounted upon the arms 50 and 51, respectively, in the rear of the nozzles by means of lips 57 bent around said arms and the said deflectors extend forwardly beyond the outer extremities of the said nozzles and are bent as shown at 58 in such a manner that when the deflectors are arranged under the nozzles, these bent extremities will extend above the perforations 54, thus directing the stream of water upwardly, while, when the said deflectors are arranged above the nozzles, the bent extremities will terminate above the said perforations and not obstruct the water. This construction is best illustrated in Fig. 4.

The central portion of the valve member 44 is provided with an upwardly projecting pin 59 extending through and above an elongated slot 60 formed in the top of the valve casing 32. This pin is adapted to be engaged by the outer extremities of the fingers 27 and 28, which are fashioned as shown at 61 for this purpose to reciprocate the valve member 44 back and forth in the chamber 35, thereby moving the valve passage 64 from alinement with the opening 37 and the hollow sprinkler arm 51, and moving the valve passage 65 into alinement with the opening 36 and the hollow sprinkler arm 52, or vice versa, as disclosed in Fig. 3.

The side of the casing 18 opposite the opening 30 is provided with a projection 62 having a weight 63 mounted upon its outer extremity to counterbalance the weight of the valve casing and sprinkler arms.

In view of the foregoing description, the operation of our improved device will be readily understood. If the fingers 27 and 28 are adjusted as disclosed in Fig. 1, the water will flow from the hose 11 into the elbow 8 upward through the stationary stem 13 through the openings 21 in said stem, into the chamber 20 formed in the rotatable casing 18. From the chamber 20 the water will flow through the passage 33 of the valve casing into the chamber 34 through the opening 36, the valve passage 65, opening 48, through the sprinkler arm 52 and out of its nozzle 53, thereby causing the casing 18 to rotate upon the stationary stem 13 and the sprinkler arms to move from the full line position in Fig. 1 through an arc disclosed by the dotted lines in said figure, in the direction of the arrow A. When the

sprinkler arms and valve mechanism have reached the dotted line position in Fig. 1, the pin 59 will strike the finger 27 and the valve member 44 will be moved from the dotted line position in Fig. 3 to the full line position in said figure, whereby the water will then flow from the chamber 34 through the opening 37, the valve passage 64, the sprinkler arm 51 and out of its nozzle 53, whereby the casing 18 is rotated in the reverse direction and the sprinkler arm and valve mechanism travel back through the arc just described, the weight 63 at all times counterbalancing the device and preventing the casing 18 from binding upon the stationary stem 13.

Having thus described our invention, what we claim is,—

1. In a lawn sprinkler, the combination of a base having an opening therein, means for supplying water to said opening, a hollow upright stem rigidly connected with the said base over the said opening, a casing rotatably mounted on said stem, an annular chamber in the casing surrounding the stem and communicating with the interior of the latter, a valve casing secured exteriorly to the rotatable casing and in communication with the said annular chamber, a pair of hollow sprinkler arms secured to the valve casing and communicating with the interior of the latter, a valve located in the last named casing, adjustable members mounted upon the upper extremity of the upright stem, and an operative connection between said members and valve for automatically reciprocating the latter to direct the stream of water alternately to the sprinkler arms, whereby an oscillating movement is imparted to the rotatable casing.

2. In a lawn sprinkler, the combination of a base having an opening connected with a suitable water supply, a hollow stem rigidly connected with said base over the opening, a casing rotatably mounted upon and surrounding the stem, and provided with an annular chamber also surrounding the stem and in communication with the interior of the latter, a valve casing secured exteriorly to the first named casing and in communication with the said annular chamber, a pair of hollow sprinkler arms mounted upon the valve casing and projecting horizontally therefrom and in communication with the interior of the said valve casing, a valve interposed in the last named casing between the sprinkler arms and the rotatable casing, fingers adjustably mounted upon the upper extremity of the stem, means applied to the stem above said fingers for holding the same in the desired position, and an operative connection between the fingers and the valve for automatically reciprocating the latter, for the purpose set forth.

3. In a lawn sprinkler, the combination of a base provided with a hollow elbow, means for supplying water to the lower extremity of said elbow, a stem rigidly mounted upon the upper extremity of the elbow and having a passage therein, the said passage registering with the interior of the elbow, a casing provided with an annular chamber, said casing mounted to rotate upon the stem, means forming communication between the annular chamber and passage in the stem, a valve casing connected with the rotatable casing and provided with an inner and outer chamber, said chambers being in communication with each other and one of said members being in communication with the said annular chamber, sprinkler arms applied to the valve casing and communicating with the said outer chamber, a valve provided with two passages and located in the outer chamber, the top of the valve casing having an elongated slot therein, a pin secured to the valve and adapted to project upwardly through said slot, and adjustable means mounted upon the upper extremity of the stem and adapted to coöperate with the said pin to automatically reciprocate the valve within the outer chamber upon rotation of the casing to direct the stream of water alternately to the sprinkler arms for the purpose set forth.

4. In a lawn sprinkler, the combination of an upright hollow stem, a casing rotatably mounted upon said stem and in communication with the interior of the latter, a second casing mounted exteriorly upon said first named casing and in communication therewith, a pair of sprinkler arms inserted in openings formed in the second named casing, a valve located in the latter between the sprinkler arms and the rotatable casing, and means mounted upon the upper extremity of the stem and adapted to coöperate with said valve when water is forced through the stem to automatically reciprocate the valve, for the purpose set forth.

5. In a lawn sprinkler, the combination with a hollow stem and a casing rotatably mounted on said stem, of a valve casing secured exteriorly to said rotatable casing, a pair of sprinkler arms inserted in the valve casing, a valve located in said valve casing, and means connected with the upper extremity of the hollow stem adapted to cooperate with said valve to automatically operate the latter, for the purpose set forth.

6. In a lawn sprinkler, the combination of a hollow stem, a casing rotatably mounted upon said stem and in communication with the interior of the latter, a valve casing connected with the rotatable casing and provided with an inner and outer chamber, said chambers being in communication with each other, and one of said chambers being in communication with the said annular chamber, sprinkler arms applied to the valve

casing and communicating with the said outer chamber, a valve provided with two passages and located in the outer chamber, and means mounted upon the upper extremity of the stem and adapted to coöperate with said valve when water is forced through the stem to automatically operate the valve for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

MAX SCHNEIDER.
CLARA G. SCHNEIDER.

Witnesses:
MAZE KIRBY,
A. EBERT O'BRIEN.