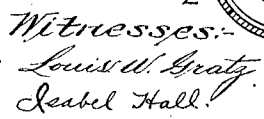


LAWN SPRINKLER.

1,084,842.

2 SHEETS—SHEET 1.



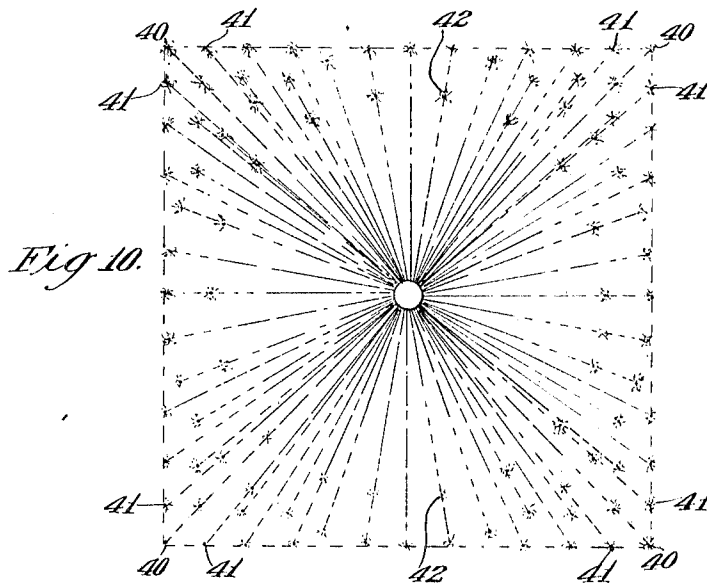
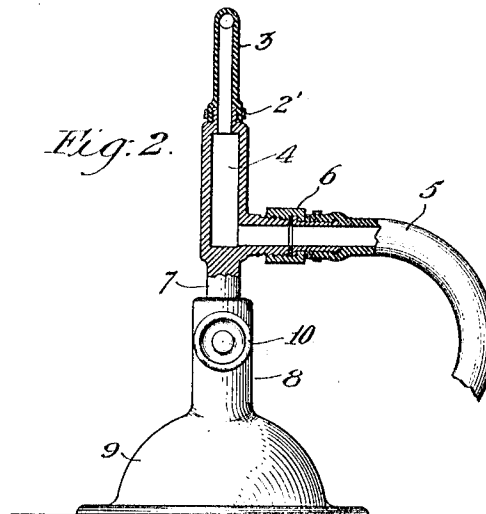
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In witness  
John F. Bustire  
by Edmund Maham  
his attorney

J. F. BUSTIN.  
LAWN SPRINKLER.  
APPLICATION FILED SEPT. 28, 1911.

1,084,842.

Patented Jan. 20, 1914.

2 SHEETS—SHEET 2.



Witnesses:-  
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Inventor  
John F. Bustin  
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his Attorneys

# UNITED STATES PATENT OFFICE.

JOHN F. BUSTIN, OF PASADENA, CALIFORNIA.

## LAWN-SPRINKLER.

1,084,842.

Specification of Letters Patent.

Patented Jan. 20, 1914.

Application filed September 28, 1911. Serial No. 651,875.

*To all whom it may concern:*

Be it known that I, JOHN F. BUSTIN, a citizen of the United States, residing at Pasadena, in the county of Los Angeles and State of California, have invented a new and useful Lawn-Sprinkler, of which the following is a specification.

This invention relates to a water sprinkler of the general type used for sprinkling lawns, and one of the main objects of my invention is to produce a sprinkler of the class described which is adapted to spray a square or rectangular plot of lawn.

Another object of the present invention is to produce a device of the character described in which the sprinkler may be readily adjusted to spray areas of different dimensions.

Another object of the present invention is to produce a device of the character described of simple and economical form.

Other objects and advantages will appear hereinafter from the following specification.

My invention consists in providing a sprinkler head having a plurality of chambers each having a plurality of water outlets, with means whereby water is supplied to a number of such outlets in one chamber at one pressure and to another number of such outlets in another chamber at another pressure, whereby the water issuing from the outlets under the greater pressure is projected the farthest from the sprinkler head, while the water issuing from the outlets under a lower pressure is thrown a shorter distance from the sprinkler head. Preferably, I accomplish this by providing a sprinkler head having a plurality of chambers, each of which has a series of outlet perforations, each chamber receiving water at a different pressure from the other chambers, so that the water delivered from the various chambers of the sprinkler head is thrown to different portions of a predetermined area.

Referring to the drawings, which are for illustrative purposes only: Figure 1 is a side elevation partly in section showing a sprinkler embodying a form of my invention. Fig. 2 is a vertical sectional view on line  $x^2-x^2$  Fig. 1. Fig. 3 is a vertical sectional view on line  $x^3-x^3$  Fig. 1. Fig. 4 is a sectional view on line  $x^4-x^4$  Fig. 1. Fig. 5 is a vertical elevation of a modified form of my invention. Fig. 6 is a vertical sectional view of the form shown in Fig. 5. Fig. 7 is a vertical, sectional view of the

form shown in Fig. 5, showing a controlling means attached thereto. Fig. 8 is a sectional view on line  $x^8-x^8$  Fig. 6. Fig. 9 is a sectional view on line  $x^9-x^9$  Fig. 7. Fig. 10 is a diagrammatic view showing the manner of sprinkling a plot of square dimensions.

In the form shown in Figs. 1, 2, 3 and 4, the sprinkler consists of a pair of sprinkler heads "a," each of which consists of a semi-cylindrical sprinkling member 1 having extending longitudinally therein a tubular distributing member 2. Each tubular member 2 is connected at its upper end by means of a coupling 2' and a flexible pipe 3, with a water chamber 4 which receives water from a hose 5 coupled to the chamber 4 by any suitable hose coupling 6. It is understood that the hose 5 is connected to a water system having pressure, such as the ordinary city water system. The water chamber 4 is supported on a vertical stud 7 slidably mounted in a standard 8 mounted on a suitable base 9 adapted to rest on the lawn. The position of the sprinkler heads in relation to the base is regulated by means of a suitable set screw 10 in the standard 8 which engages the stud 7. Each member 1 is provided with a rearwardly extending arm 11 pivotally mounted on an extension 12 on the water chamber 4, the pivot consisting of a suitable set screw 13 for the purpose of adjusting the sprinkler heads in relation to each other. The space between the member 1 and member 2 of each sprinkler head is divided up into a plurality of sprinkling chambers 15, 16, 17, 18, 19, 20 by a series of washers 21, of rubber or other suitable material, mounted between flanges 22 on the tubular member 2. Each sprinkling chamber 15, 16, 17, 18, 19 and 20 receives a water supply from the tube 2 through perforations 24 formed in the tube 2, and each sprinkling chamber is provided with outlet or spray means which consists of a series of perforations 25 formed in the walls of the member 1. The openings 24 in the tube 2 decrease in area from the upper chamber 15 to the lower chamber 20, and the outlet perforations in the sprinkling chambers increase in number from the upper chamber 15 to the lower chamber 20. The water is prevented from leaking from the upper chamber 20 by means of suitable packing, as indicated at 26 in the form above described.

In the form of device above described each

sprinkler head is adapted to spray half of the area of the plot being sprinkled, but if desired the sprinkler may consist of a single sprinkling head 30 consisting of a sprinkling member cylindrical in form and closed at its upper end by a wall 31, as indicated in Figs. 5, 6, 7, 8 and 9, in which case the single sprinkler head is adapted to spray a complete area on all sides of the sprinkler. In this form of sprinkler the tubular member 2 which extends through a packing 32 in the lower end of the member 1 may be mounted in a standard in the same manner as the stem 7 is mounted in standard 8 in the form shown in Fig. 1, and the water supply or hose may be coupled directly to the lower end of the tube 2 by any suitable coupling not shown.

In the form shown in Figs. 5, 6, 7, 8 and 9, the arrangement of the parts is in the same form as that shown in the preceding figures, except that the space between the chambers 1 and 2 is circular in form and the rubber washers 21 are circular in form, thereby dividing the space between the inner and outer members into circular chambers 15, 16, 17, 18, 19 and 20.

In the form shown in Figs. 7 and 9, the chambers 15 to 20 inclusive are each divided vertically by means of division walls 33 of rubber which divide the chambers 15 to 20 inclusive vertically. The chambers at each side of the division walls 33 are in communication with the tube 2 through openings 24, and if it is desired the series of chambers on one side of the division walls 33 may be shut off from the tube 2 by means of a rotatable valve member 34 operated by means of a handle means 35 mounted on the end of a stem 36 which extends through a packing 37 in the upper end of the sprinkler head, the inner end of said stem being connected to the upper end of the valve member 34.

In the form shown in Figs. 5 to 9 inclusive, the water from the upper chamber 15 is thrown to the four corners of the plot indicated in Fig. 10 through four perforations 25 arranged opposite to each other in the walls of member 1 about the chamber 15, each of which perforations throws a stream of water to the opposite corner 40 of the plot of lawn of the form shown in dotted lines in Fig. 10. As the corners of the plot are the portions of the plot farthest away from the sprinkler head "a," the openings 24 in the tube or member 2, which supply water to the chamber 15, are of larger diameter than the openings which lead from the tube or member 2 into any of the other chambers below the chamber 15, thereby giving a greater head or pressure to the water passing out of the chamber 15. In the chamber 16 next below the upper chamber 15 the number of perforations in the member 1 is

increased, in the present instance shown as eight, and deliver water from the chamber 16 to the points indicated at 41 on Fig. 10. As the points 41 are nearer to the sprinkler head, the opening 24 in the member 2, which supplies water to the chamber 16, is of slightly less diameter than the opening 24 which supplies water to the chamber 15 which sprinkles the corners of the plot, and as the number of perforations 25 which deliver water from the chamber 16 is greater than that of the chamber 15, the head of water in chamber 16 is less than that in chamber 15 and the water delivered therefrom is not thrown to as great a distance as the water in chamber 15. Each succeeding lower chamber is provided with an increasing number of perforations or outlets 25 in the member 1 and with a decreasing size of opening 24 in the chamber 2 which supplies water to the successive chambers, so that the water from each successive lower chamber is thrown a shorter distance than the water in the next chamber above. In the lowest chamber 20 the perforations are placed close together so as to supply water to points on the circle indicated at 42 in Fig. 10, and the opening in the tube or member 2 which supplies water to the chamber 20 is of smaller diameter than any opening 24 in any chamber above, so that the water passing through the perforations 25 in the chamber 20 falls on the space directly surrounding the sprinkling member from the circle 42 indicated to the sprinkler head.

In the form of sprinkler shown in Fig. 1, where each sprinkling member consists of a semi-cylindrical member 1, it is understood that each sprinkling member is designed to deliver a spray therefrom to one-half of the area of a sprinkler cylindrical in form, as that shown in Figs. 3 to 9 inclusive. In the form shown in Fig. 1, the sprinkler heads "a" may be changed to a greater or less elevation; the greater elevation would cause the water sprayed from the sprinkler to cover a rectangular piece of ground and the lesser elevation would cause the sprinkler to cover a shorter area.

It is understood that while the sprinkler as above described is designed to cover a square piece of ground, that by changing the position of the perforations 25 the sprinkler may be adapted to cover any desired shape of area.

It is understood that my invention is not limited to the specific form of arrangement of inlet and outlet openings in the water distributing chambers shown, but covers a sprinkler having a plurality of chambers, the inlet openings and outlet openings of which are arranged to throw the water from the different chambers to different distances from the sprinkler head.

It is obvious that my invention as herein

shown and described includes the arrangement of a series or plurality of sprinkling chambers arranged with relation to each other to coact and jointly sprinkle a predetermined area.

What I claim is:—

1. A lawn sprinkler comprising a sprinkler head consisting of an outer member, a hollow inner member spaced apart from said outer member, division walls between said members forming a series of chambers therebetween, each chamber having a plurality of inlet openings in the inner member and a plurality of outlet openings in the outer member, and means for supplying water to the inner member.

2. A lawn sprinkler comprising a sprinkler head consisting of an outer member, a hollow inner member spaced apart from said outer member, division walls between said members forming a series of chambers therebetween, each chamber having a plurality of inlet openings in the inner member and a plurality of outlet openings in the outer member, the inlet openings in the successive chambers decreasing in size and the outlet openings in the successive chambers increasing in number, and means for supplying water to the inner member.

3. A lawn sprinkler comprising a sprinkler head consisting of an outer member, a hollow inner member spaced apart from said outer member, division walls between said outer and inner members forming a series of chambers therebetween, outlet means for each chamber, means for supplying water to said inner member, the supply means for the several chambers differing in area, whereby the supply of water delivered to each chamber differs from the amount delivered into and from the other chambers.

4. A lawn sprinkler comprising a sprinkler head consisting of an outer member, a hollow inner member spaced apart from said outer member, division walls between said outer and inner members forming a series of chambers therebetween, outlet means in each chamber, water supply means for each chamber, the supply means for one chamber being of a greater area than the

supply means for another chamber, thereby causing a difference in the amount of water delivered into and out of the several chambers.

5. A lawn sprinkler comprising a pair of sprinkler heads, each sprinkler head consisting of an outer member, an inner member spaced apart from said outer member, division walls between said members forming a series of chambers therebetween, each chamber having a plurality of inlet openings in the inner member and a plurality of outlet openings in the outer member, a flexible water supply pipe for each sprinkler head connected at one end to the inner member of the sprinkler head and connected at the other end to a common water chamber, means for supporting said water chamber, means for supplying water to said water chamber, and means for changing the relative position of said sprinkler heads.

6. A lawn sprinkler comprising a sprinkler head consisting of a hollow member, a plurality of division walls in said member arranged substantially parallel with each other forming a plurality of chambers of approximately equal volume therein, each of said chambers having an outlet opening, and each of said chambers having an inlet opening of different dimensions from the inlet openings in the other chambers.

7. A lawn sprinkler comprising a sprinkler head having a plurality of chambers formed therein having a common water supply, each chamber being provided with inlet means from such water supply, and outlet means arranged to direct the water over a certain predetermined area individual to such chamber, all of such chambers being adapted and arranged to coact to sprinkle an area within the area of the farthest throw of water from one of the chambers of the sprinkler.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 20th day of September, 1911.

JOHN F. BUSTIN.

In presence of—

FRANK L. A. GRAHAM,  
LOUIS W. GRATZ.