

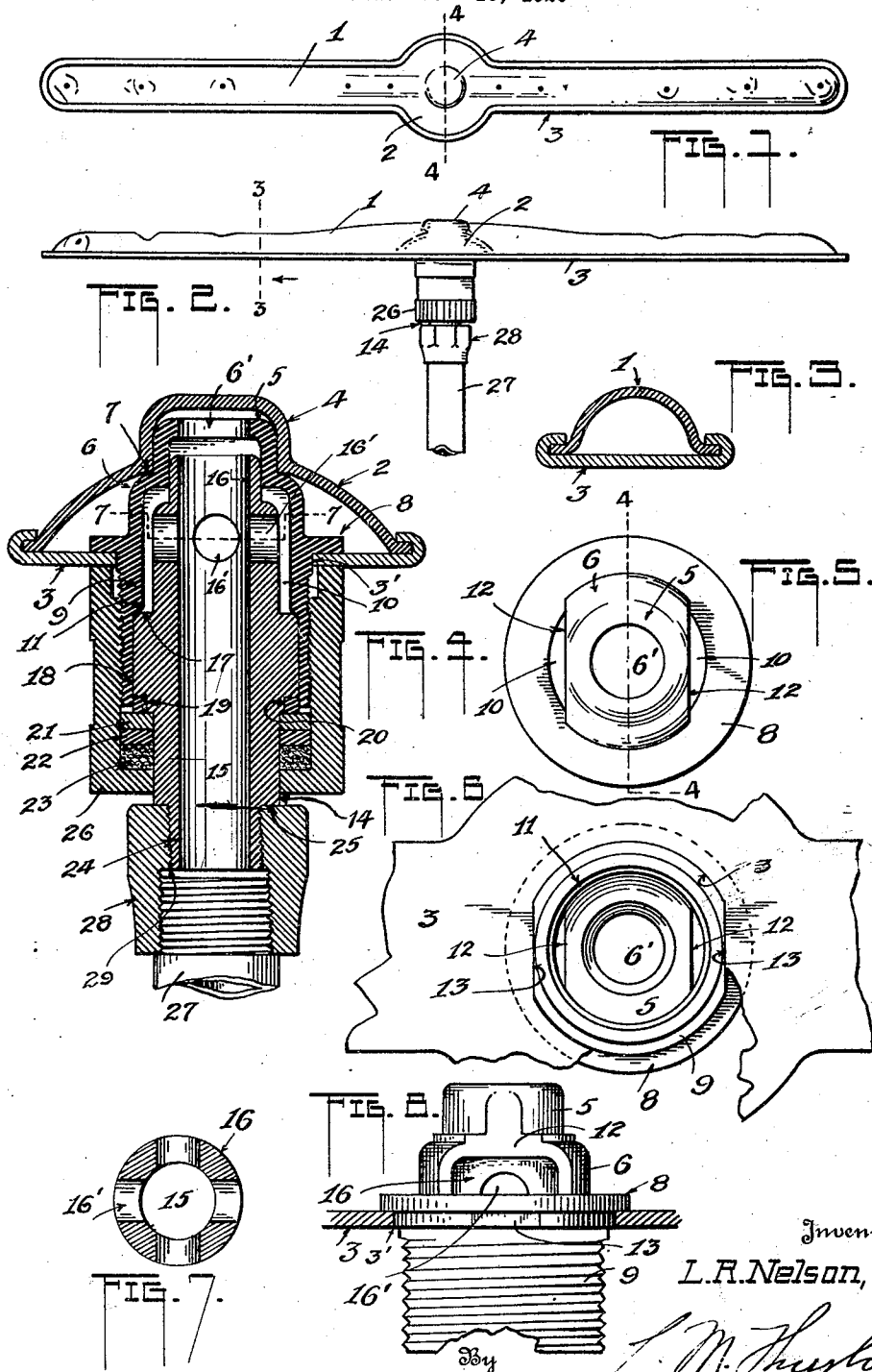
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L. R. NELSON

LAWN SPRINKLER

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Inventor

L. R. Nelson,

Attorney

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LEWEN R. NELSON, OF PEORIA, ILLINOIS.

LAWN SPRINKLER.

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This invention pertains to lawn sprinklers, being directed particularly to sprinklers of the whirling type employing a perforate rotary sprinkler-head.

5 One of the objects of the invention is that of providing a type of bearing between a sprinkler-head and a supporting standard that will admit of a free perfectly balanced action during rotation.

10 Another object is to provide for a centrally mounted arm forming a sprinkler-head, a structure of a nature by which said arm or head will be strengthened and prevented being distorted or bent when acciden-

15 tally subjected to blows or pressures at either side of the center of mounting.
Still another and very important object is to provide for a rotary sprinkler-head a structure that will prevent loss of water pressure at its bearing and so that all of the pressure can be utilized and delivered through the perforations of said head.

20 The invention further consists in details of construction to be pointed out at length herein aided by the accompanying drawing wherein,

Figure 1 is a plan of my sprinkler shown about one-half size.

Figure 2 is a side elevation of the same.

30 Figure 3 is a transverse section of one of the arms of the head.

Figure 4 is a vertical transverse section of the head on line 4—4, Figures 1 and 5, together with the bearing thereof and a portion of a standard, this figure being produced about twice the size of the sprinkler as constructed for use.

Figure 5 is a plan of a portion of the device shown in Figure 4.

40 Figure 6 shows the under side of a part of the sprinkler-head and the lower side of the member shown in Figure 5.

Figure 7 is a transverse section of a part of the device on line 7—7, Figure 4, and

45 Figure 8 is a side elevation of parts shown in Figure 1, including a longitudinal section of part of the lower wall of the sprinkler-head.

50 The sprinkler-head as illustrated in Figures 1 and 2 is of the same type and general form of stamping as that illustrated in my prior pending application for Letters Patent, Serial Number 718,721 filed June 9, 1924, the present application being more particularly directed to the form of mounting and bearing therefor.

Said head comprises an apertured top portion 1 arched transversely throughout as shown in section in Figure 3, and has the domed central portion 2, while 3 designates a lower portion, the two said portions 1 and 3 being overlapped upon one another at their edges to form a closed water space, the whole being centrally mounted in a manner now to be described.

60 First, as differing slightly from the body shown in said prior application, the upper portion 1 has a cap portion 4 created therein into which extends from below, in a snug fit, an extension 5 of a member 6 having a hollow or shell form, said member including a shoulder 7 upon which said cap portion 4 rests, and including also a flange 8 whose under surface lies flush with and receives against it the upper or inner face of the portion 3, the latter being provided with a hole 3' through which extends an extremity 9 of said member 6. Said extremity 9 drops a considerable distance below the head 1, 3 and is externally threaded.

80 The bore of the member 6 substantially corresponds with the outline of the exterior surface thereof and opens through the top at 6' into the head 1, being spaced therefrom, but near its lower end it has a counterbore 10 leaving an annular shoulder 11.

In Figure 5 the top of the member 6 is illustrated, while a side elevation of that member is shown in Figure 8, it being observed that portions of the same at two opposite sides, in this instance, are cut away above the flange 8, as at 12, exposing the bore of said member for a purpose to appear later. It is the desire to fix the lower portion 3 of the head and the described member 6 relatively and to this end, as an effective manner of so doing, portions of the said member just beneath the flange are cut away leaving straight edges, reducing the diameter of the member at these points, the opening or hole 3' being thus of such outline that the edges thereat correspond with and fit the member and prevent rotation one on the other.

100 A fitting is next provided indicated as a whole by 14. It has a bore 15 extending through it from end to end, and is of some considerable length, and has an upper terminal portion 16 to rotatably fit into the bore of the tension 5 of the member about as shown. Below such portion 16 the fitting is provided with a series of apertures 16'

and below these it is enlarged preferably into a shoulder 17 adapted to abut against the described shoulder 11 of the member 6 at times only, while a considerable surface 18 of the fitting has a smooth turning fit in the bore of the last named member beneath its said shoulder 11. A ring 19 preferably of bronze, this being found to answer better than other metals for wearing purposes, the same being forced upon a part 20 of the fitting, and adapted to bear thereupon is a second ring of bronze 21, followed by a third ring 22. Preferably there is also provided a ring 23 of felt or other type of yielding material which bears against the ring 22, all the rings encircling the lower portion of the fitting 14, the latter terminating in a threaded reduced extremity 24 below a shoulder 25 of said fitting. At 26 is a shell which may be termed a stuffing-box. This is internally threaded to receive the threaded portion of the member 6, its upper extremity being made to clamp the head portion 3 between it and the flange 8 of the member 6 when said member and shell are tightly screwed upon one another. The lower end of the shell or stuffing-box is bored to receive the stem of the fitting 14 and also serves to bear against the ring or gasket 23 to hold all of the free rings in place upon one another.

A conduit for flow of water to the sprinkler-head is indicated in part at 27, this representing the usual portable stand to carry the head 1, 3. It is threaded to receive a nut 28 which has a reduced bore 29 threaded to receive the end 24 of the fitting 14, the three last named elements being rigidly held with respect to one another due to the manner of connection shown.

The water enters the bore 15 of the said fitting 14, passes from the upper end thereof into the head through the opening 6' of the member 6 to the arms of the head 1, 3, escaping also through the apertures 16' and the bore 10 of said member 6 thence out above the flange 8, Figure 5, and through this route also entering said sprinkler-head, the latter rotating due to passage of water through the apertures therein which are inclined at an angle as described in said prior application.

Due to the upward pressure of the water against the head that member is lifted with the result that since the stuffing-box 26 rotates with said head together with the member 6, the rings 21, 22, and 23 will all be bunched together against the fixed ring 19.

The felt ring 23 naturally provides considerable friction on the adjacent ring 22 turning it upon or with respect to the ring 21 or even turning the latter ring therewith depending upon the amount of friction set up within the series of such rings.

The purpose of the plurality of rings of

metal is that after some little use of the sprinkler their surfaces will finally be worked down so that water-tight joints are created so that, supposing that the water tended to flow down from the bore or cavity 10, its passage through the seated and ground ring surfaces would be entirely prevented, no leaks occurring, therefore, around the stuffing-box and member 14. The felt ring 23 is not a necessity but merely serves to sooner effect the grinding of the surfaces of the metal rings.

An important advantage in the sprinkler is the provision of the surface 18 of the fitting 14 forming a bearing with the member 6 together with the further bearing between the extremity 16 of said fitting and the upper extension 5 of said member 6. These, as may be seen, form two points of bearing between these two elements and add immeasurably to the stability of the head and its smooth and true rotative action, coupled with the fact that the cap portion 4 of the head 1, 3 is brought snugly down over said extension 5.

It is readily seen that by positively cutting off all leaks below the head all of the water pressure is delivered into the latter and full use of such pressure is therefore maintained; obviously a great advantage in sprinklers of the rotary type. Again, in my form of sprinkler there is no bearing point exposed at the top of the affair to permit leakage, but rather the bearing provided herein is completely housed in the head so that again all water entering the latter is applied to the sprinkling act.

In assembling the device the member 6 is seated in the opening 3' of the head-portion 3, followed by the capping of both by the portion 1. The act of clamping the marginal edges of the two portions 1, 3 secures the said member 6 in position permanently whereupon the fitting 14 previously provided with the fixed ring 19 is inserted followed by the rings 21, 22 and 23 and the stuffing-box 26. The shoulders 11 and 17 on the member 6 and fitting 14, respectively, are provided for the purpose, merely, of limiting the telescopic action of the last named elements in one direction.

I may not provide the opening 6' in the top of the portion 5 of the member 6 and thus the latter may itself form part of the head, extending the same at each side of the center of rotation and answering in place of the specially provided head portion 1 and therefore in some of the claims I shall use the term head as applying to either of these parts.

I claim:

1. A sprinkler adapted for rotation including in its construction a hollow relatively long and narrow head made from a stamping and comprising an upper longitudinally domed wall and a lower separate

wall the edges of which walls are lapped one upon the other, a tubular member enclosed between the walls of the head terminating at one end within the upper domed wall and opening into the head, said member having a flange to engage upon the inner surface of the lower wall and at its other end extending through said lower wall, and a part outside the head engaging with the member and clamping the lower wall between itself and the flange of said member.

2. A sprinkler of the rotary type including in its construction a hollow head comprising an upper wall and a lower separate wall secured to one another, a tubular member enclosed at one end between the walls of the head and terminating therebetween and at its other end extending through the lower wall and having a lateral extension to engage the inner surface of said lower wall, and a part engageable with the member adapted to clamp the said lower wall between said member and said extension, the said upper wall having an integral domed cap portion to receive into it part of the enclosed member.

3. A sprinkler of the rotary type including in its construction a hollow head having an upper wall and a lower separate wall whose edges are secured to one another, a tubular member enclosed at one end in the head and opening at that end thereinto and at its other end extending through the lower wall and having a lateral extension to lie upon the latter, and a part engageable with the member adapted to clamp said lower wall to said lateral extension, the said upper wall having a domed imperforate cap portion to receive and partially enclose the inner open end of the said member, said upper wall within the said cap portion being spaced from the opening of the member.

4. A sprinkler of the rotary type including an upper and a lower separate wall portion affixed to one another forming a closed head, the upper wall having a domed cap portion extending upwardly therefrom creating a recess beneath it, a member enclosed at one end in the head having one end seated in said recess, the other end of the member extending through the said lower wall and having a lateral extension overlying part of the inner surface of said lower wall, and means mounted on the member adapted to clamp the last named wall between it and the said extension.

5. In a sprinkler, a portion forming the bottom wall of a sprinkler-head, the same having a hole therein, a tubular member extending through the hole and having a flange adapted to rest upon said portion, a second portion forming a top wall of said sprinkler-head, the same having a closed cap portion to snugly fit over the end of the member, said

second portion adapted to be placed upon the member and bottom wall and secured at its edges to the latter, and a shell portion threaded upon the member outside the assembly adapted to clamp the bottom wall upon the said flange of the said member.

6. In a sprinkler, a portion forming the bottom wall of a hollow sprinkler-head, the same having a hole therein, a tubular member lying in the hole and extending from both sides of said portion and including a flange to engage one side of the latter, a second portion forming the top wall of said head adapted to enclose one end of the member and the flange and secured at its edges to the said bottom wall after assembly, said top wall having a cap portion to receive the end of the member in a snug fit, a shell portion threaded on the extended end of the member outside the assembled head adapted to clamp the bottom wall upon the flange of the member, and a tubular perforate fitting extending into the member forming a support and bearing upon which the same is adapted to rotate.

7. In a sprinkler, a portion forming the bottom wall of a hollow sprinkler-head, the same having a hole therein, a tubular member lying in the hole and extending from both sides of said portion and including a flange to engage one side of the latter, a second portion forming the top wall of said head adapted to enclose one end of the member and the flange and secured at its edges to the said bottom wall after assembly, said top wall having a cap portion to receive the end of the member in a snug fit, a shell portion threaded on the extended end of the member outside the assembled head adapted to clamp the bottom wall upon the flange of the member, and a tubular perforate fitting extending into the member forming a support and bearing upon which the same is adapted to rotate, said member having a discharge opening communicating with the space within the head.

8. In a sprinkler, a separate top and bottom portion adapted to be connected to one another to form a sprinkler-head, a tubular member enclosed at one end between the portions including a flange to engage the inner side of the said bottom portion, the top portion having a cap portion to fit upon the end of the member within the head, a sleeve threaded upon the other end of the member outside the head adapted to clamp the bottom upon the flange, and a perforate fitting extending into the member having a turning fit within part of the same within the said head, said fitting also being spaced from the walls of the bore of the said member within the head.

9. In a sprinkler, a domed portion of thin stamped metal and a second portion connected thereto together forming a cavities

sprinkler-head, a tubular member extending through the said second portion and seated in the said domed portion, fixed with respect to both, said member including a flange within the head seated upon the said second portion, a sleeve threaded upon the member outside the head adapted to clamp the said second portion upon the flange, and a tubular fitting having a turning fit in said member at two spaced positions and spaced from said member between such positions, and having a discharge opening therein between said positions.

10. In a sprinkler, a domed portion of thin stamped metal and a second portion connected thereto together forming a cavitiesprinkler-head, a tubular member extending through the said second portion and seated in the said domed portion, fixed with respect to both portions, said member including a flange within the head seated upon the said second portion, a sleeve threaded upon the member outside the head adapted to clamp

the said second portion upon the flange, a tubular fitting having a turning fit within said member at two spaced positions and spaced from said member between such positions, there being a discharge opening in the fitting between the said positions, and packing rings interposed between the fitting and sleeve.

11. In a sprinkler head including an upper domed portion of thin stamped metal terminating in a flared edge, a lower portion of thin stamped metal having its edges turned over upon the flared edges of the said upper portion, a separate tubular member extending through the lower portion and snugly fitting at its inner end in said upper portion, said member including a flange disposed in the space between the portions and lying upon the lower of the two, and a tubular fitting having a turning fit in said tubular member.

In testimony whereof I affix my signature.
LEWEN R. NELSON.