March 16, 1926. 1,577,225

H. Z. GRANGER

ROTARY SPRINKLER

Filed Jan. 21, 1925 2 Sheets-Sheet 1

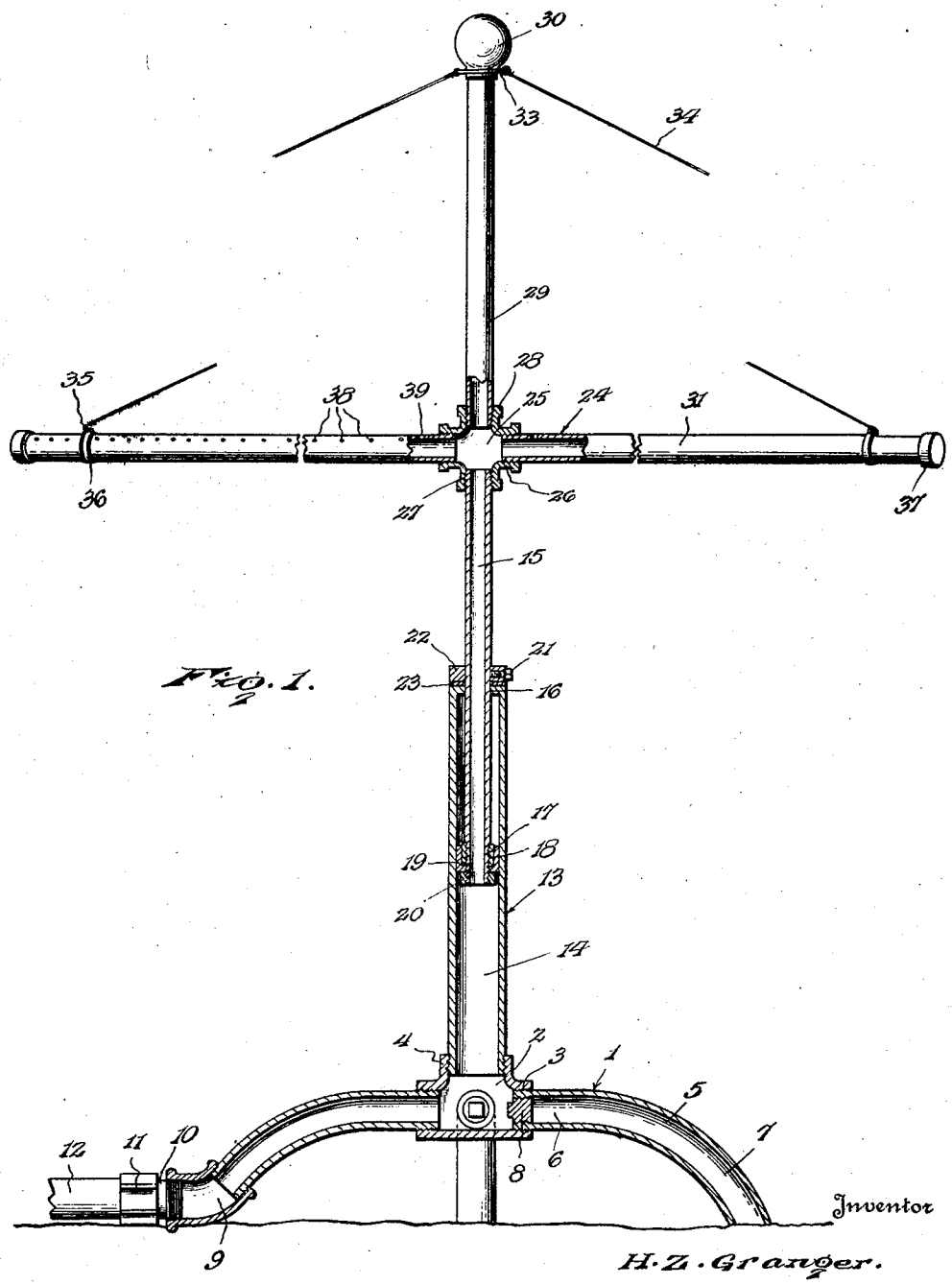


Fig. 1.

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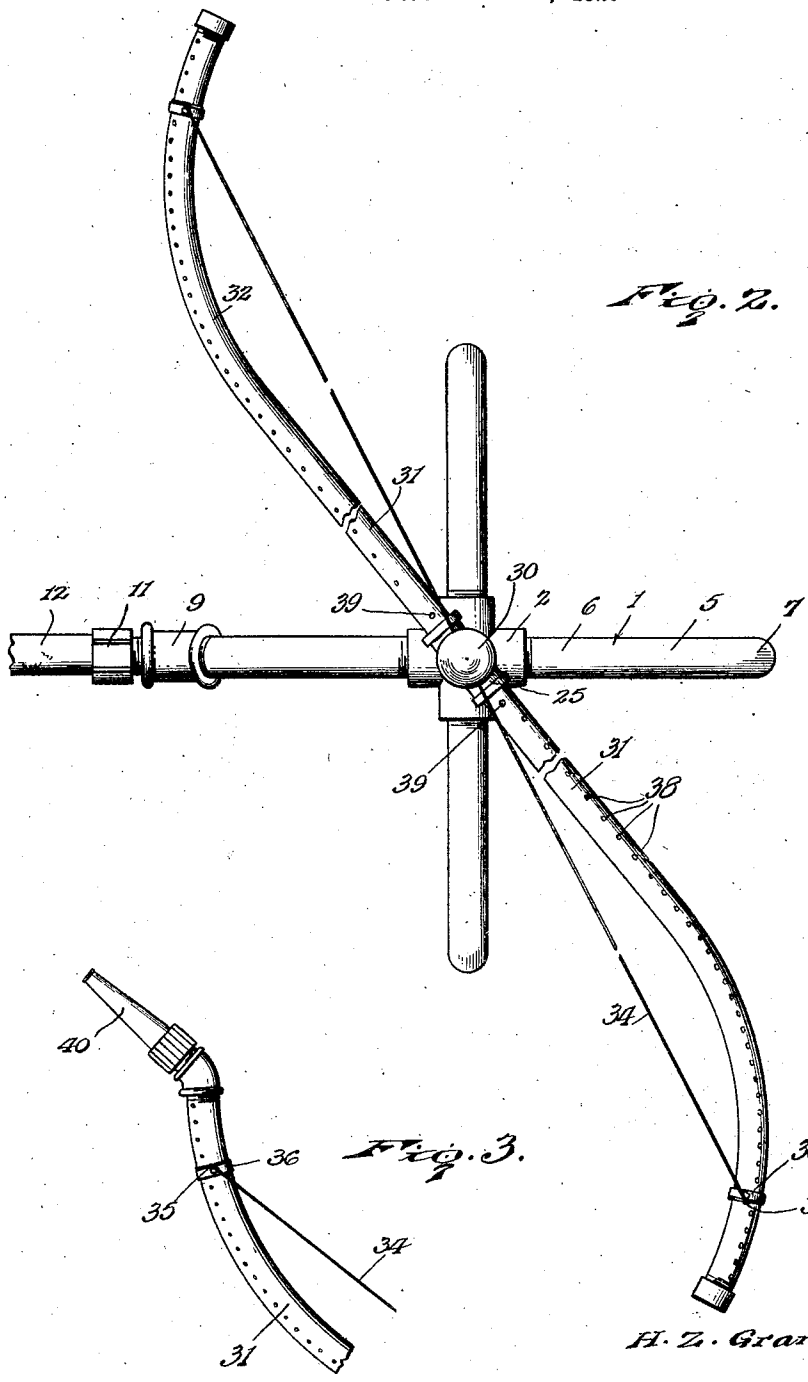


Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

HARRY Z. GRANGER, OF COMSTOCK, NEBRASKA.

ROTARY SPRINKLER.

Application filed January 21, 1925. Serial No. 3,842.

To all whom it may concern:

Be it known that I, HARRY Z. GRANGER, a citizen of the United States, residing at Comstock, in the county of Custer and State of Nebraska, have invented certain new and useful Improvements in Rotary Sprinklers, of which the following is a specification.

This invention relates to improvements in lawn sprinklers and more particularly to sprinklers of the rotary type.

One of the objects of the present invention is to provide a sprinkler of this type which may be manufactured at a low cost and its parts readily assembled and as readily separated, thereby adapting the sprinkler to be shipped in a knocked-down form.

Another object of the invention is to provide a sprinkler in which the upright water-conducting pipe may be extended vertically, thereby adapting the nozzle tubes which extend radially from it to occupy a more or less elevated position, as desired.

One objection to sprinklers of this type is that they are liable to readily overturn and, therefore, the present invention has as a further object, to provide a novel means for supporting the water-conducting pipe of the sprinkler and provide, in connection with the supporting means, a connection for the hose so that water is delivered from the hose through one of the legs of the supporting means and into the conducting pipe, thus providing for connection of the hose with the sprinkler directly at the ground surface and obviating any likelihood of the weight or pull of the hose tending to overturn the sprinkler.

Another object of the invention is to provide a sprinkler which may be constructed from standard pipe fittings and the like, thereby obviating the necessity of manufacturing special parts and thus adding to the cost of the device.

In the accompanying drawings:

Figure 1 is a view partly in side elevation and partly in vertical section, illustrating the sprinkler embodying the invention.

Figure 2 is a top plan view of the sprinkler.

Figure 3 is a fragmentary plan view of one of the arms of the sprinkler, illustrating a slight modification of the invention.

In the drawings, the upright water-conducting pipe of the sprinkler is illustrated as mounted upon a supporting base indicated in general by the numeral 1. The said base comprises a member 2 in the form of a union having four interiorly threaded branches 3 each at right angles to the branches next adjacent it, and a larger upwardly directed branch 4 which is likewise interiorly threaded. The supporting legs of the support are indicated by the numeral 5 and each comprises a length of pipe which is bent to provide a horizontally extending portion 6 and a gradually downwardly curved portion 7 and the ends of the portions 6 of the legs are threaded into the branches 3 of the union 2 so that the legs extend radially from the said union or central member as shown clearly in Figure 2 of the drawings. The inner end of each of three of the legs 5 is closed by a plug 8 which is threaded into the said end of the respective legs so that no water can enter these three legs. To the lower end of the portion 7 of the fourth leg there is fitted one end of an elbow 9, and a short nipple 10 is threaded into the other end of the elbow for the connection thereto of the coupling 11 of a water supply hose 12.

The upright water-conducting pipe of the sprinkler is indicated in general by the numeral 13 and comprises two sections, one indicated by the numeral 14 and the other by the numeral 15. The pipe section 14 is threaded at its lower end into the upward branch 4 of the center member 2 of the support and at its upper end is slightly reduced in diameter, as indicated by the numeral 16. The pipe section 15 is slidably fitted through the reduced upper end of the pipe section 14 and the lower end of the said section 15 is exteriorly threaded as indicated by the numeral 17, a collar 18 being threaded onto the said end of said section and a cupped washer 19 being fitted thereon and surounding the collar. A nut 20 is threaded onto the said end of the pipe section 15 and is tightened to bear against the under side

of the washer 19, the washer being of dimensions to fit in a water-tight manner within the bore of the pipe section 13. In this manner, the pipe section 15 is connected in a water-tight manner with the pipe section 14 but may be adjusted vertically so as to vary the elevation of the sprinkler head which is supported upon its upper end as will presently be explained. Fitted upon the pipe section 15 and secured thereto by a set screw 21, is a collar 22 which rests upon a washer 23 likewise fitted upon the said pipe section 15 between the under side of the collar and the upper end of the pipe section 14, the purpose of the collar being to support the pipe section in the position to which it is adjusted.

The sprinker head is indicated in general by the numeral 24 and said head comprises a central member 25 in the form of a coupling having two lateral branches 26 arranged opposite each other, a lower branch 27, and an upper branch 28. The upper end of the pipe section 15 is threaded and fitted into the lower branch 27 of the central member, and a short pipe section 29 is threaded into the upper branch 28 of the said central member and is closed at its top by a head or cap 30, which may be plain or of ornamental design as desired. The nozzle tubes of the sprinkler head are indicated by the numeral 31 and the inner end of each tube is threaded into an individual one of the branches 26 of the central member 25, the tubes extending radially from the said central member for the greater portion of their length and the outer end portion of each tube being deflected or curved gradually as at 32. In order to brace and support the nozzle tubes, the cap 30 is preferably formed with a flange 33 to which are connected the upper ends of guy wires 34, these wires being connected at their lower ends to hooks 35 formed upon collars 36 secured upon the nozzle tubes 31.

In that form of the invention shown in Figures 1 and 2 of the drawings, caps 37 are threaded onto the outer ends of the nozzle tubes 31 and these tubes are formed throughout their length with a series of water discharge openings or orifices indicated by the numeral 38. The tubes 31 are of considerable length and by reference to Figures 1 and 2 it will be observed that the openings 38 are located above a plane intersecting the axes of the tubes but below the upper sides of the tubes so that as jets of water issue from the openings, the inertia of the tubes and the supply pipe by which they are supported will be overcome and this portion of the device will be caused to rotate. It will likewise be observed by reference to the said figures, that the openings 38 are equidistantly spaced throughout the series extending from the outer ends of the tubes inwardly for substantially one-third of the length of the tubes, from which point, the openings are spaced apart gradually increasing distances throughout the remainder of the series. It will also be observed that other openings 39 are provided in the tubes near the inner ends thereof so that streams of water will be directly substantially vertically and, falling to the ground, will irrigate that portion of the ground surface in the vicinity of the supporting base 1. By arranging the openings 38 and spacing the same in the manner stated, substantially an equal volume of water is distributed over the ground surface throughout the area irrigated by the sprinkler. It will likewise be observed by reference to Figure 2 of the drawings, that the arrangement of the openings 38 in the tubes is such that the jets of water discharged from the openings of one tube will follow in paths intermediate the corresponding jets of the other tube, thereby insuring of an even distribution of the water over the ground surface.

If found desirable or necessary, the caps 37 may be removed and nozzles 40 may be fitted to the outer ends of the nozzle tubes as shown in Figure 3 of the drawings, the nozzles being so constructed that they will extend substantially, at an angle of forty-five degrees rearwardly from the outer end portions of the respective tubes. It will likewise be understood that should it be desired to increase the length of the tubes 31, the caps 37 may be unthreaded and one or more extra lengths of tubing added to provide for irrigation of a larger area of ground surface.

From the foregoing description of the invention, it will be seen that there is provided a sprinkler which may be constructed from various standard fittings and consequently manufactured at a low cost.

The sprinkler will, of course, operate automatically and it will be evident that by vertically adjusting the pipe section 15, the water may be distributed over an area of greater or less circumference. This is due to the fact that the jets when elevated are subjected to the action of air currents for a longer period than when lowered. It will also be evident that by connecting the supply hose 12 with one of the legs 5 and consequently directly at the ground surface, the weight or pull of the hose will not in any way tend to overturn the sprinkler. On the other hand, the hose tends to hold the sprinkler stationary.

Having thus described the invention, what I claim is:

A lawn sprinkler comprising a base including a coupling member having an upstanding and lateral branches, legs connected to the lateral branches and extending outwardly and downwardly, one of the legs

being tubular and having a fitting at its lower end forming a foot and coupling means for the hose pipe, an upright pipe coupled to the upstanding branch of the said coupling member, a second pipe having a slidable and rotatable connection with the upright pipe, and having a piston fit at its lower end therein, means on the second pipe to hold it at the required vertical adjusted position, and a sprinkler head carried by the second pipe.

In testimony whereof I affix my signature.

HARRY Z. GRANGER. [L. S.]