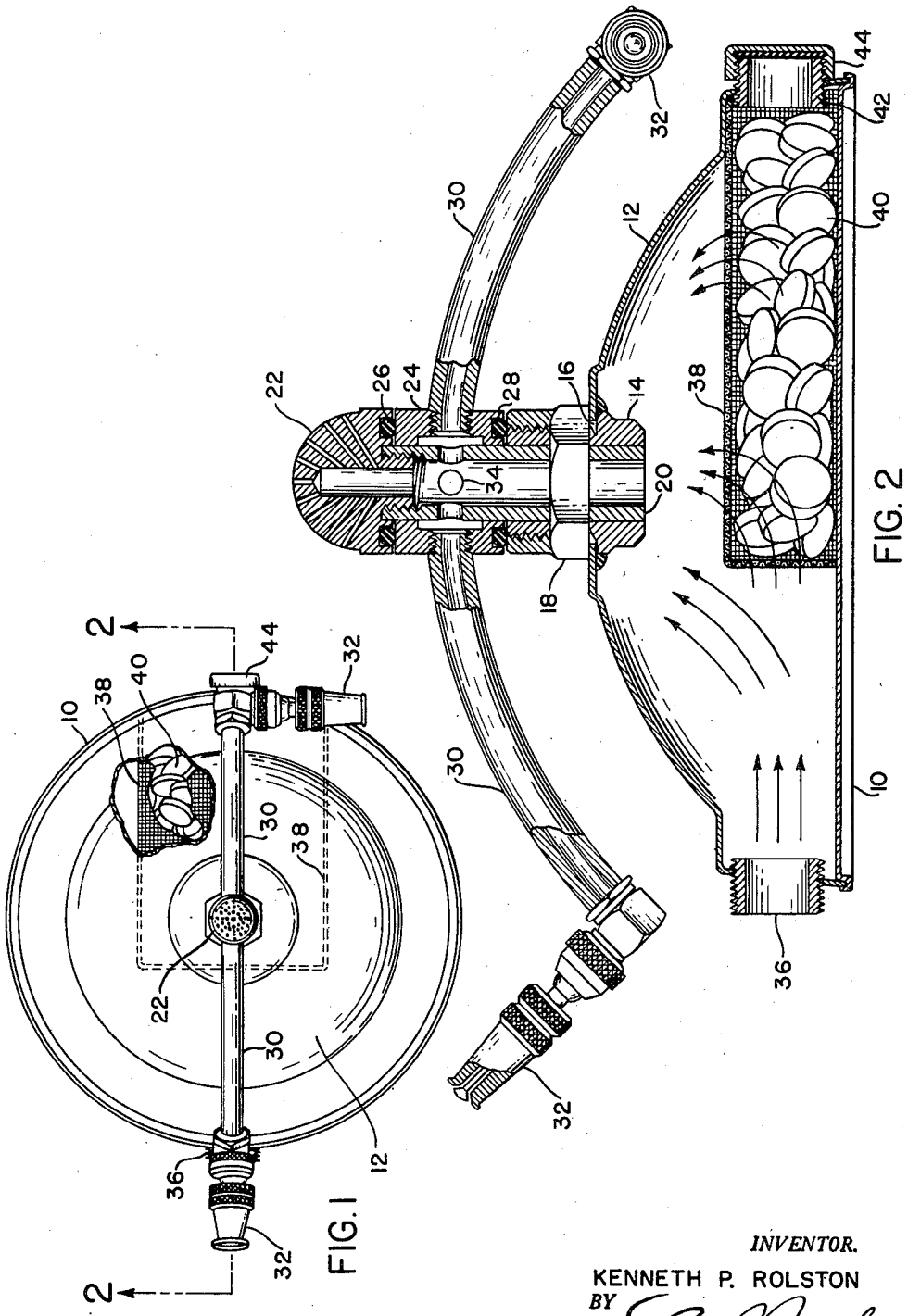
April 2, 1957 K. P. ROLSTON 2,787,499

SPRINKLER

Filed Oct. 7, 1954



INVENTOR.

KENNETH P. ROLSTON

BY Louis Necho

ATTORNEY

United States Patent Office 2,787,499 Patented Apr. 2, 1957

2,787,499

SPRINKLER

Kenneth P. Rolston, Bristol Township, Bucks County, Pa., assignor to Franklin Metal & Rubber Co., Philadelphia, Pa., a corporation of Pennsylvania

Application October 7, 1954, Serial No. 460,869

1 Claim. (Cl. 299—69)

My invention relates to a rotary sprinkler of the type used for watering lawns. One object of the invention is to produce an improved sprinkler of the type set forth.

A sprinkler of the type set forth includes a stationary base and a rotating head which carires perforated laterally extending arms. Since the head is rotated by water pressure friction between it and the base should be minimized and in order to prevent puddling around the sprinkler base, the junction between the rotating head and the base should be as water tight as possible.

It is therefore a further object of the invention to produce an improved sprinkler in which minimum friction and maximum water seal are attained.

A still further object is to produce a sprinkler of the type set forth which can be used to dispense plain water or fertilizer, or insecticide-charged water, as desired.

The structure and operation of the invention will be understood from the following specification and the accompanying drawings in which:

Fig. 1 is a top plan view of a sprinkler embodying my invention, certain parts being broken away to show details of construction.

Fig. 2 is an enlarged view, partly in elevation and partly in vertical section looking in the direction of line 2—2 on Fig. 1.

The sprinkler illustrated includes a round flat base 10 which supports a domed casing 12. To the inner side of the top of the domed casing there is fixedly secured a boss 14 having a reduced threaded portion which projects upwardly through an opening 16 formed in the top of the casing and is threadedly engaged by a nut 18. The boss 14 also carries a pipe 20 the upper end of which is threadedly engaged by a cap which is preferably perforated 22. Between the cap 22 and the nut 18 there is a rotary cylindrical member 24. The underside of cap 22 and the underside of rotary member 24 are provided with annular grooves for receiving upper and lower O-ring gaskets 26 and 28.

Rotary member 24 carries hollow arms 30 which carry adjustable nozzles 32 which communicate with pipe 20 through openings 34. The casing 10 is provided with a threaded fitting 36 for connection with a garden hose or other source of water, not shown. Inside the casing 10 is a screened compartment 38 for receiving pellets 40 of a water-soluble fertilizer, insecticide or other chemical additive. Access to the screened compartment 38 is had through an opening provided with a threaded neck 42 which is adapted to be closed by cap 44.

When water is admitted into the casing, some of it flows directly to pipe 20 and some of it flows between the pellets 40 in screened compartment 38. The resulting mixture is sprayed through nozzles 32 on the rotating arms 30 and, optionally, through holes in cap 22. The screen from which pellet compartment 38 is formed has a very close mesh so as to prevent clogging of the small holes in cap 22 or those in nozzles 32.

When the pellets are exhausted, a new supply is introduced by removing cap 44. Fertilizers and insecticides are usually sold in concentrated form and must be diluted before they are used. By this arrangement, the solubility of the chemicals can be such that the passage of water there-over will produce a useable solution,

In order to secure a relatively water-tight seal and at the same time to reduce friction to a minimum, the grooves in which O-rings 26 and 28 are placed are so dimensioned that, when the device is assembled, there will be light contact between the underside of cap 22 and the upper side of rotary member 24 and between the underside of rotary member 24 and the upper side of nut 18, and the initially round O-rings will be slightly compressed and will assume a slightly oval shape in cross-section, as shown in the drawing. In this way, the O-rings will have enough contact with the adjacent bearing surfaces to produce a fairly good water seal but will not have enough friction appreciably to retard rotation, in the presence of a film of water.

The closeness of the tolerances of the grooves relative to the initial cross section of the O-rings, and the very light contact between the surfaces of the rotary member 24 and the upper and lower stationary bearing surfaces are such that they can not be adequately illustrated in the drawing. Therefore, for the purpose of this disclosure the drawings are to be assumed as conforming to the description of the tolerances as immediately above set forth.

It will be noted, pipe 20 is stationary and that the flow of water into and through pipe 20 can not exert any upward pressure against the rotary member 24. In other words, rotary member 24 is free to revolve about pipe 20 and the compression of the O-rings initially effected by the assembly of the parts is not affected by the presence or absence of water pressure in pipe 20 and in arms 30.

What I claim is:

A sprinkler including a casing, a vertical pipe fixedly carried by, and communicating with said casing, a rotary member loosely engaging said pipe for free rotation around the vertical axis thereof, said rotary member having an upper bearing surface and a lower bearing surface, an upper fixed member providing an upper bearing surface adapted to coact with the upper bearing surface of said rotary member, a lower fixed member providing a lower bearing surface adapted to coact with the lower bearing surface of said rotary member, there being an upper, annular groove formed in one of said upper bearing surfaces, an O-ring gasket in said upper groove, there being a lower, annular groove in one of said lower bearing surfaces, an O-ring gasket in said lower groove, and a pair of hollow arms carried by said rotary member and communicating with the interior of said pipe, the depth of each of said grooves being slightly less than the cross section of the O-ring seated in said groove, and the width of said groove being slightly greater than the cross section of said ring whereby when said rotary member is assembled between said upper and lower fixed members, said rings will be distorted in the direction of the width of said groove and said upper and lower bearing surfaces will have limited abutment with each other respectively.

References Cited in the file of this patent

UNITED STATES PATENTS

1,144,070	Schneider	June 22, 1915
1,901,655	Keys	Mar. 14, 1933
1,976,030	Lighthall	Oct. 9, 1934
2,307,328	Martin	Jan. 5, 1943
2,501,260	Brodin	Mar. 21, 1950
2,531,923	Smith	Nov. 28, 1950
2,560,662	Rieger	July 17, 1951
2,563,961	Rieger	Aug. 14, 1951
2,596,693	Karlstrom	May 13, 1952

FOREIGN PATENTS

142,205	Australia	Mar. 10, 1949