

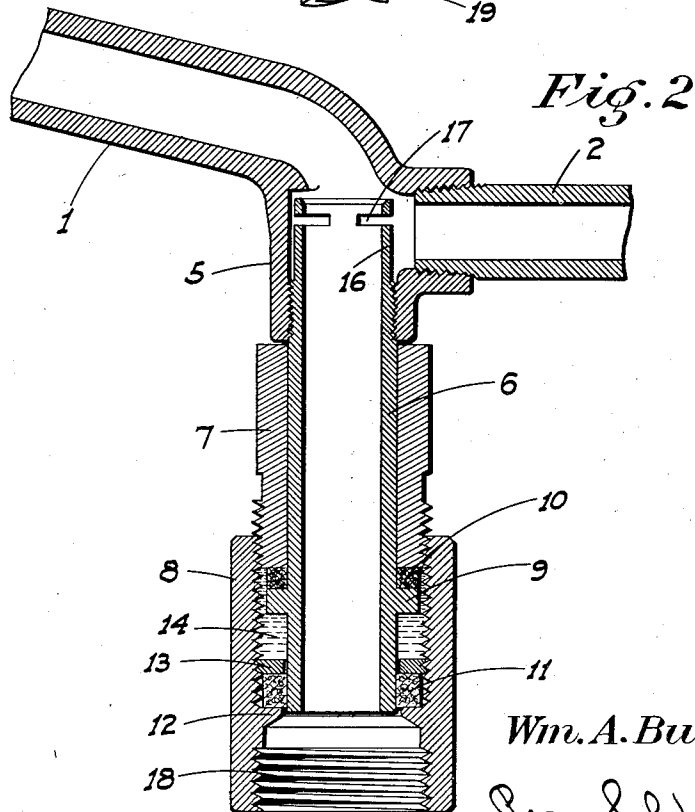
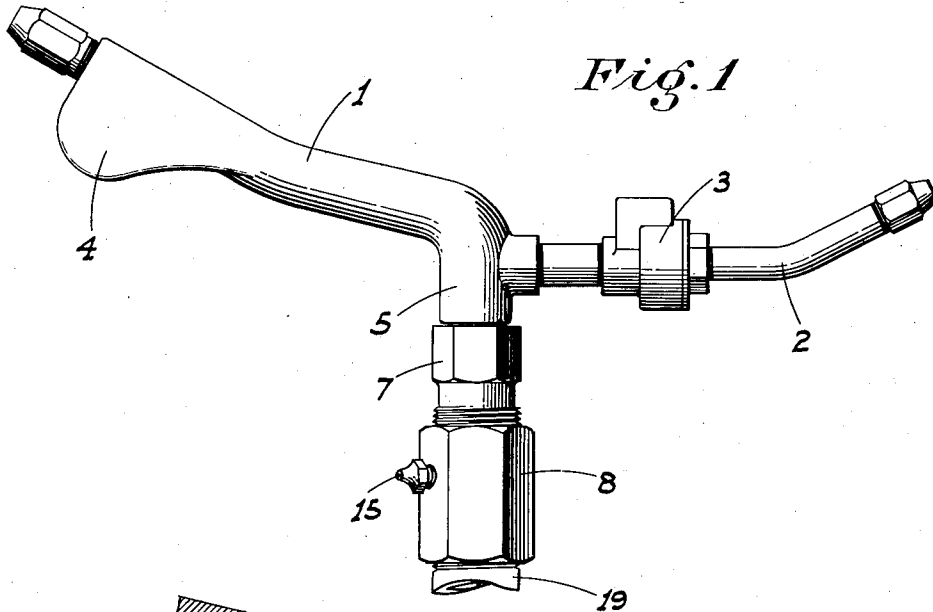
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SAND ELIMINATING MOUNTING FOR SPRINKLER HEAD SPINDLES

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SAND ELIMINATING MOUNTING FOR
SPRINKLER HEAD SPINDLES

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This invention relates to sprinklers of the slow rotation type, and particularly to the mounting of the sprinkler head spindle in its support, for operating conditions where a considerable amount of sand and other foreign matter is forced through the piping along with the water and into the sprinkler.

My improved sprinkler bearing for mounting has been particularly designed for use in connection with the portable overhead irrigation systems now widely used in various parts of this country, where the suction end of the pump is disposed in a creek, irrigation ditch, or the like, without any screen about the intake, and from which silt, sand, etc., is sometimes pumped in considerable quantities into the piping and through the sprinkler. The ordinary sprinkler spindle mounting is entirely unsatisfactory for use under such conditions, due to the sand and other gritty matter getting into the bearing and around the spindle, not only subjecting the same to undue wear, but causing it to slow down and sometimes stop entirely, unless the retractive drive unit is continually adjusted or changed.

Also in systems of the above character the sprinklers are frequently disposed so that the spindles are not vertical and the sprinkler heads jerk or whip around unless they are perfectly balanced and free to rotate.

It is therefore the main object of my invention to provide what may be termed a sand eliminating bearing for sprinkler head spindles, so arranged that sand and the like is positively kept away from the bearing and from about the spindle and is discharged through the nozzles of the sprinklers. The bearing will therefore last much longer under adverse conditions than is now the case, besides improving the efficiency of action of the sprinkler. Also the parts of the improved mounting and bearing structure are such that any wearing parts can be easily replaced whenever necessary.

I have also provided for a better balance of the sprinkler head than has previously been the case so that the head will turn smoothly and easily even if the spindle is not perfectly vertical.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawing similar characters of reference

indicate corresponding parts in the several views:

Fig. 1 is a side elevation of a complete sprinkler unit.

Fig. 2 is a vertical enlarged section of the bearing structure of the unit.

Referring now more particularly to the characters of reference on the drawing, the sprinkler head comprises relatively long and short diametrically opposed nozzle arms 1 and 2, the latter being provided with a slow motion control unit 3 preferably the same as shown in my Patent No. 1,910,678, dated May 23, 1933; the sprinkler head as a whole being also circumferentially of the same type and general dimensions as shown in said patent, though this is not essential. To counterbalance the arm 1 to compensate for the weight of the unit 3 which is disposed intermediate the ends of the arm 2, said arm 1 is formed with a depending weight 4 of suitable shape toward its outer end.

The arm 1 terminates in a short depending head portion 5 from the side of which opposite to the arm 1, the arm 2 projects. A depending tubular spindle 6 is removably but tightly screwed into the head 5. The upper portion of this spindle turnably engages the bore of the main bearing body 7 throughout the length of the latter, said body being centrally threaded on its lower end. Removably screwed onto said body and depending therefrom is a sleeve nut or coupling member 8, and forms what I term the sand eliminator housing.

A short distance below the body 7 the spindle is formed with an outwardly projecting flange 9 thereabout which forms a support for a bearing and seal washer 10 of leather or the like which is disposed between and engages said flange and the bottom of the bearing member 7. The spindle projects some distance below said flange and adjacent its lower end is snugly engaged by a felt washer 11 which is supported on an inwardly projecting retaining flange 12 formed in the housing 8. The washer 11 is engaged on top and removably held in place by a removable retaining ring 13 screwed into the housing 8 from its upper end and surrounding the spindle with a clearance fit.

The space about the spindle between the retainer 13 and the bottom of the bearing 7 forms a chamber for lubricant, as shown at 14, which lubricant is introduced when necessary through a standard pressure gun fitting 15 on the outside of the housing 8. The upper end portion 16 of the spindle, above its threaded connection with the head 5, is of reduced size so that it is spaced

from the bore of said head and is freely open to the arm 1, said upper end of the spindle lying adjacent the upper end of the head portion 5 and the top of the adjacent end of the arm 2.

5 Adjacent said upper end the spindle is provided with circumferentially extending slots 17 forming a strainer for large particles of sand, etc., and preventing the same from passing into said arm and possibly interfering with the operation of
10 the rotation control unit 3. The housing 8 is tapped below the flange 12, as shown at 18, for connection to the standard pipe 19 on which the spindle as a whole is mounted and from which the water passing through the sprinkler is supplied from the main horizontal pipe.

15 In assembling the structure the washer 11 is first mounted in the housing 8 and is saturated with suitable lubricating compound. The retaining ring 13 is then inserted and screwed down
20 tight. The washer 10 is placed on the spindle, the bearing 7 slid into place on the latter, and said spindle is then screwed tightly into the head 5. The spindle is then slid into place in the housing 8 and through the washer
25 11 from the upper end of said housing. The body 7 is then screwed down into the housing sufficiently so that the bottom of the spindle is substantially flush with the bottom of the washer 11. Lubricant is forced into the chamber 15 so
30 as not only to completely fill the same but so that said lubricant will be forced up between the main bearing and spindle, and about the washers and adjacent parts so as to maintain them in a thoroughly lubricated and water sealing condition.

35 The sprinkler is then ready for operation and no matter how much water pressure may be used no water will pass through or around the lower felt washer into the lubricating chamber,
40 nor can any water or sand get past said chamber and between the spindle and the main bearing to interfere with the free rotation of the spindle.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:

1. A bearing structure for a rotary spindle comprising a bearing body in which the spindle is turnably mounted, a housing depending from the body, and adapted for connection to a source of water supply, the spindle projecting into the housing, a flange on and about the spindle below the body, a yieldable seal and washer ring resting on the flange and engaging the bottom of the body, an absorbent packing ring snugly engaging the spindle below the flange, and means in the housing separate from the flange retaining said last named ring against displacement.

2. A bearing structure for a rotary spindle comprising a bearing body in which the spindle is turnably mounted, a housing depending from and removably mounted on the body, and adapted for connection to a source of water supply, the spindle projecting into the housing, a flange on and about the spindle below the body, a yieldable seal washer ring resting on the flange and engaging the bottom of the body, an absorbent yieldable packing ring snugly engaging the spindle below the flange, a flange in and about the housing on which said last named ring rests, and a retaining ring removably mounted in the housing above and adjustably engaging the upper surface of said last named ring.

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