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DRAIN FOR SPRINKLER

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Fig. 1

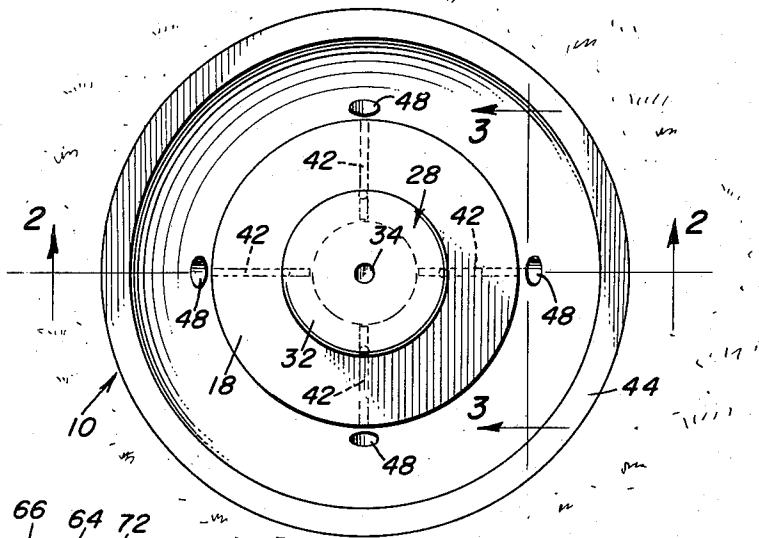


Fig. 4

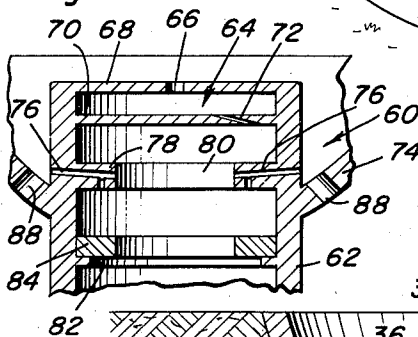


Fig. 2

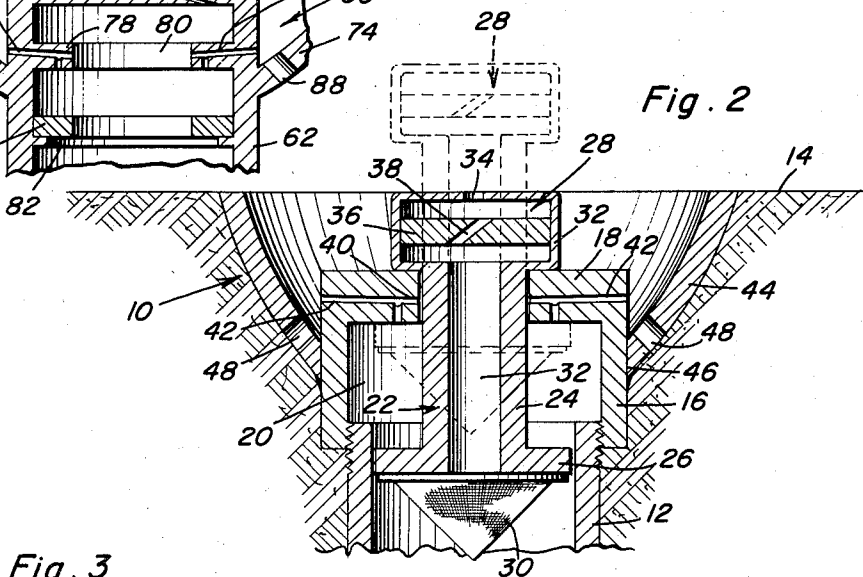
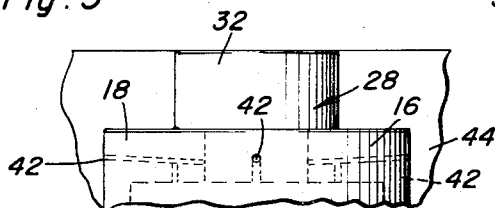


Fig. 3



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## DRAIN FOR SPRINKLER

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1 Claim. (Cl. 299—61)

This invention relates to improvements in sprinklers and more particularly to sprinklers of the type which are fixtures in the lawn or other area that is to be serviced by the sprinkler system.

An object of the invention is to provide a sprinkler head with means to drop the water level in the head when the use thereof is discontinued. In any sprinkler system, it seems that there are always one or more low sprinkler heads in each run or unit of the system. The water level remains at the top of these low heads because of the water in the system. The result is that a moss or other impurity forms in the head. After a while, the impurities, and/or moss plugs the spray head, making it inoperative, or at least ineffectual.

Accordingly, a further object of the invention is to relieve the above described difficulty by forming drains on the outside of the sprinkler head and in all of the sprinkler heads of the system, or at least the low ones, so that the water level will be maintained at a low condition by draining off excess water after the sprinkler system has been turned off.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a top view of a sprinkler head which is constructed in such way as to demonstrate the principles of the invention;

Figure 2 is a longitudinal, sectional view taken approximately on the line 2—2 of Figure 1;

Figure 3 is a fragmentary, elevational view taken approximately on the line 3—3 of Figure 1; and

Figure 4 is a fragmentary, sectional view showing a modified head on which the principles of the invention are applied.

In the accompanying drawing there is a sprinkler head 10. It consists of a water line 12 which rises vertically to a point below the grade level 14. A cylindrical housing 16, having a side wall, an open, internally threaded end and a top wall 18, is threaded onto the extremity of pipeline 12. The housing encloses a valve chamber 20 in which there is a vertically movable valve 22.

Valve 22 consists of a hollow stem 24 having a flange 26 at its lower end and a nozzle 28 at its upper end. Strainer 30 is attached to the flange 26 and is in registry with the passageway 32 which is formed in the hollow stem 24. Passageway 32 opens into the nozzle 28, the latter consisting of a hollow body 32 having a discharge orifice 34 in one wall and a nozzle plate 36 in the hollow body spaced slightly from the orifice 34 and having four liquid conducting holes or channels 38 therein.

Flange 26 functions as a valve in the operation of the sprinkler head. When water under pressure is applied to

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the bottom surface of the valve 22, it is lifted by that pressure, causing the shank 24 to move through the opening 40 in the top wall 18 of housing 16. The upper surface of flange 26 comes to bear against the lower surface of wall 18, closing the liquid conducting channels 42 that are formed generally laterally in top wall 18 and thereby causing all the water passing through pipeline 12 to pass through nozzle 28. When the water in line 12 is turned off, the stem 24 of valve 22 is gravity lowered. By so lowering the valve stem, flange 26 becomes separated from channels 42, permitting the water to drain out of nozzle 28 through channel 42 and out through drain holes 48 to the surrounding soil.

Upwardly opening casing 44 is made as a partial sphere having a smaller end provided with an opening 46 in which housing 16 is fitted and attached. Drain holes 48 are formed in the casing 44 at a low point thereof, permitting any water accumulated in the casing 44 to drain to the ground surrounding the sprinkler head.

A second embodiment of the invention, as demonstrated by sprinkler head 60, is shown in Figure 4. This sprinkler head is of a type which is to be installed in a subterranean sprinkler system, as is the sprinkler head of Figure 2. Instead of being of the pop-up type, the sprinkler head 60 is of the fixed type. It includes a generally cylindrical housing 62 which is threaded onto a pipeline, for example, a pipeline identical to that shown at 12 in Figure 2. Nozzle 64 is formed at the top of the housing by having an orifice 66 formed in the top wall 68 thereof and by having a nozzle plate 70 extending transversely across the housing beneath the end wall 68. Four water conducting channels 72, at an angle to the axis of the orifice 66, are formed in the nozzle plate 70.

An upwardly opening casing 74, identical in construction and function to the upwardly opening casing 44, is attached to the housing 62 and slightly below the generally laterally extending water passages 76 which are formed in the wall 78, the latter being in housing 62 beneath the nozzle 64. A central opening 80 is formed in wall 78 and is adapted to conduct liquid under pressure to feed the nozzle 64. A seat 82, consisting of an inwardly directed flange, is in housing 62 beneath wall 78. This seat has a vertically movable valve 84 disposed thereon. This valve is to be actuated by liquid under pressure, and, therefore, it is in the form of a washer having an area in access of the area of seat 82. In addition, valve 84 is of such dimension that when it is moved upwardly by water under pressure, it closes the channels 76, thereby requiring that all of the water pass through the nozzle 64. Drain holes 88 are formed in a low point in upwardly opening casing 74. When the sprinkler head 60 becomes ineffectual, as by turning off the water, the valve 84 falls onto its seat 82, enabling water to drain out of nozzle 64 through channel 76 and out drain holes 88 to the surrounding soil. Water remaining in the casing 74 is drained to the surrounding soil through drains 88.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

A sprinkler head comprising an open top casing having water drain openings therein adjacent its bottom, a cylindrical open bottom housing depending through the bottom of the casing and rising therein, said housing being adapted for threading of its bottom onto a vertical

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water pressure pipe to receive water under pressure from said pipe, said housing having a side wall and having a top wall provided with a central opening therein, water drain channels in said top wall around said opening communicating with said casing and with the interior of said housing for draining water from said housing into said casing to drain out of said drain openings, a hollow stem slidably depending through said opening in the top wall and gravity actuated downwardly in the absence of water pressure in said pipe and housing, a water discharge nozzle on said stem above said top wall responsive to water pressure from said line to lift said stem, and a cir-

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cumferential flange on said stem below said top wall seating against said top wall and closing said channels from said housing in response to lifting of said stem whereby to prevent discharge of water under pressure through said channels from said pipe.

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