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SPRINKLER HEAD

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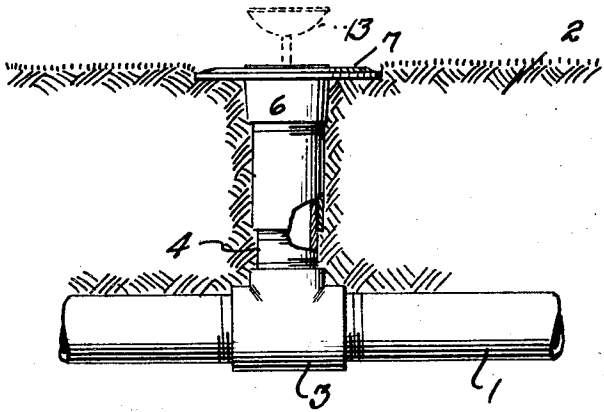


Fig. 1

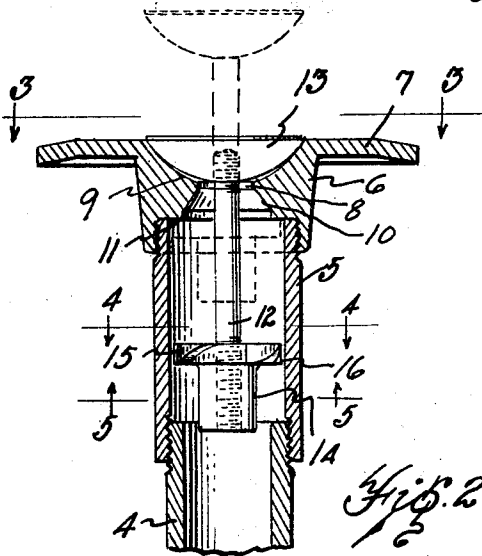


Fig. 2

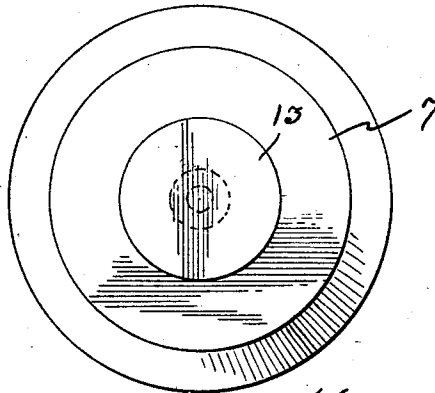


Fig. 3

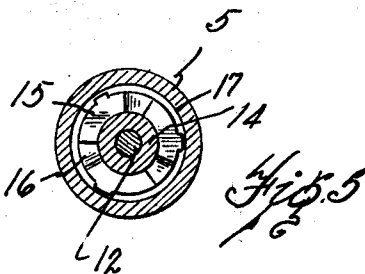


Fig. 4

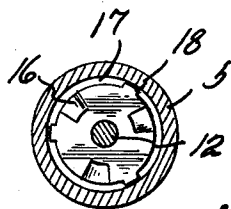


Fig. 5

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SPRINKLER HEAD

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The present invention is concerned with an underground irrigating system, and the invention aims particularly to provide an improved sprinkler head for use in such systems.

The object of the invention is to provide a sprinkler head of simple construction embodying few parts and in which there is a single part which is movable to open and close the discharge orifice when the water is turned on or off respectively, and which is arranged so that its operation will not be interfered with by dirt or sand deposits, and in which one or more of the parts can be easily removed for cleaning purposes.

In the accompanying drawings:

Fig. 1 is a somewhat diagrammatic view in illustration of a sprinkler head in an underground irrigating system.

Fig. 2 is a vertical section taken through the sprinkler head.

Fig. 3 is a top plan view of the head.

Fig. 4 is a section taken on line 4—4 of Fig. 2.

Fig. 5 is a section taken on line 5—5 of Fig. 2.

A suitable conduit 1 in an underground irrigating system is disposed a distance beneath the surface of the earth or lawn, the surface being referenced 2, and at suitable points in the conduit, wherever a spray of water is desired, a T-fitting 3 is placed in the conduit.

The sprinkler head is associated with this T-fitting and for this purpose a nipple 4 may be employed, one end of which is screw threaded into the T-fitting, and the other end of which is for attachment to the sprinkler head.

The sprinkler head takes the form of a casing or housing 5 which may be a short section of pipe which is screw threaded to the nipple, as shown in Fig. 2. Affixed to the upper end of the housing 5 is a cap member 6. This member 6 is shown in Fig. 1 and is designed to lie substantially flush with the surface of the earth, and it is preferably formed with a flange 7 of extended diameter to keep earth deposits and grass away from the center of the cap.

This cap is formed centrally with an aperture 8 which forms a discharge orifice for water and which is in the form of a valve seat 9. The lower portion of the aperture is frusto-conical in shape, thus having inwardly tapering walls 10. Adjacent the lower edge of the cone the head is provided with an internal shoulder 11.

A single movable element is associated with this construction and it consists of rods 12 provided at its upper end with valve 13, and at its lower end with a member 14 which has the combined function of a guide device and a water whirling device.

The rod, the valve, and the guide device are all secured together to act as a unit, and they all may be advantageously attached by means of screw threads.

The member 14 has a disk-like part 15 provided with a number of spiral passageways 16 through which the water passes. It will be noted that the disk 15 has a diameter appreciably less than the diameter of the inside of the housing 5 thus to leave an intervening circumferential space 17. In order to adequately guide the valve structure in its movement, however, this member is provided with a number of projections 18 which come into rather close proximity with the inner walls of the housing 5.

In the operation of this sprinkler head the parts take the position as shown in the full lines of Fig. 2, when the water supply is cut off from the conduit 1. In this position the valve 13 rests on its seat and closes the discharge orifice. When the water supply is turned on the pressure thereof lifts the valve structure to the position shown in the dotted lines. The water passes through the spiral openings 16 and is then directed by the walls 10 so that a conical spray of water is discharged through the discharge orifice.

It is possible that some dirt or sand deposits may fall into the housing, and in contemplation of this the disk 15 was made of smaller diameter than the casing so that such deposits might pass the disk through the space 17 and not be caught by the disk in such a manner as would interfere with the operation of the head. When the water is first

turned on, therefore, it is apparent that there will be a tendency for the water to flow past the disk member through the passage 17. However, this does not occur when the valve

5 structure has reached its uppermost in operating position because the disk abuts against the shoulder 10, thus leaving only the spiral

10 passageways 16 for the passage of the water. Should, for any reason, an undue amount of dirt or sand deposits collect within the casing, the same can be very easily cleaned by merely unscrewing the cap 6, which permits complete withdrawal of the cap and the entire valve structure, and accordingly the

15 valve structure and the inside casing cleaned and the valve structure and cap replaced.

Claims:

1. A sprinkler head for an underground 20 irrigation system, comprising a housing for fixed connection with an underground conduit, said housing having its upper end substantially flush with the surface of the ground and provided with a central discharge orifice, 25 a valve seat surrounding the orifice, a rod extending through the orifice, a valve secured to the upper end of the rod for closing the orifice, and a guide member secured to the lower end of the rod, said guide, rod and 30 valve forming a unit which is movable by the pressure of the water to open the discharge orifice, said guide member having an angularly disposed passageway therethrough for imparting a spiral motion to water passing 35 therethrough.

2. A sprinkler head for an underground irrigation system, comprising a casing adapted to be permanently connected with an underground water conduit and having a 40 discharge orifice in its upper end, the valve seat surrounding the orifice, an internal shoulder in the casing below the orifice, a unitary movable assembly consisting of a rod having a valve member secured to one 45 end which normally rests upon the valve seat and a guide member on its lower end which guides the assembly as regards the housing, said assembly being movable by pressure of the water to lift the valve from its seat, said 50 guide member being raised to contact with the shoulder to limit the upward movement of the assembly with the guide movable in close proximity to the orifice, said guide member also having angularly disposed passageways for the water whereby to effect a 55 spiral spray of water which is discharged through the orifice.

3. A sprinkler head for an underground irrigation system, comprising a housing having 60 a discharge orifice, a valve outside the housing for closing the orifice, a rod depending from the valve and extending into the housing, a guide device on the lower end of the rod, said valve, rod and guide device forming a unit 65 assembly movable under pressure of water

to lift the valve and open the orifice, said guide device being in the form of a disk having a diameter which is less than the internal diameter of the housing whereby to permit 70 earth or sand deposits to pass between the guide device and housing to prevent interference with the movement of the said assembly.

4. A sprinkler head for an underground irrigation system, comprising a housing having 75 a discharge orifice, a valve outside the housing for closing the orifice, a rod depending from the valve and extending into the housing, a guide device on the lower end of the rod, said valve, rod and guide device 80 forming a unit assembly movable under pressure of water to lift the valve and open the orifice, said guide device being in the form of a disk having a diameter which is sufficiently less than the internal diameter of 85 the housing whereby to permit earth or sand deposits to pass between the guide device and housing to prevent interference with the movement of said assembly, and an internal 90 shoulder in the housing against which the guide device abuts to limit the upward movement of the assembly, said shoulder sealing the space between the disk member and the housing to prevent passage of water there- 95 through, and said disk member having passageways to permit the water to discharge through the said orifice.

5. A sprinkler head for an underground irrigation system, comprising a housing having 100 a discharge orifice, a valve outside the housing for closing the orifice, a rod depending from the valve and extending into the housing, a guide device on the lower end of the rod, said valve, rod and guide device 105 forming a unit assembly movable under pressure of water to lift the valve and open the orifice, said guide device being in the form of a disk having a diameter which is less than the internal diameter of the housing whereby 110 to permit earth or sand deposits to pass between the guide device and housing to prevent interference with the movement of the said assembly, and an internal shoulder in the housing against which the guide device 115 abuts to limit the upward movement of the assembly, said shoulder sealing the space between the disk member and the housing to prevent passage of water therethrough, and said disk member having passageways there- 120 through for the water, and a plurality of projections extending from the edge of the disk which are in close proximity with the interior walls of the housing for guiding the assembly.

In testimony whereof I affix my signature. 125
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