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2,768,027

SHUT-OFF DEVICE FOR LAWN SPRINKLERS

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2 Sheets-Sheet 1

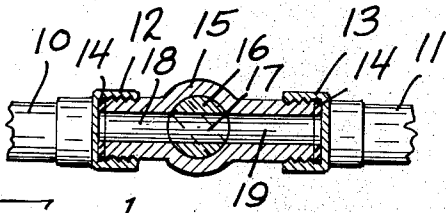


Fig. 1

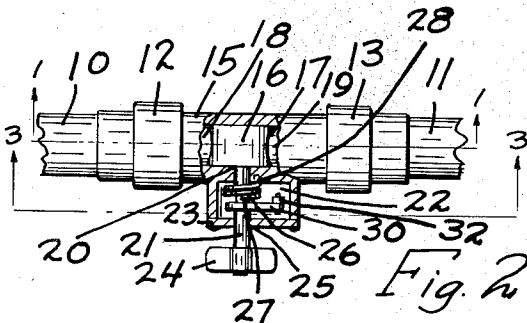


Fig. 2

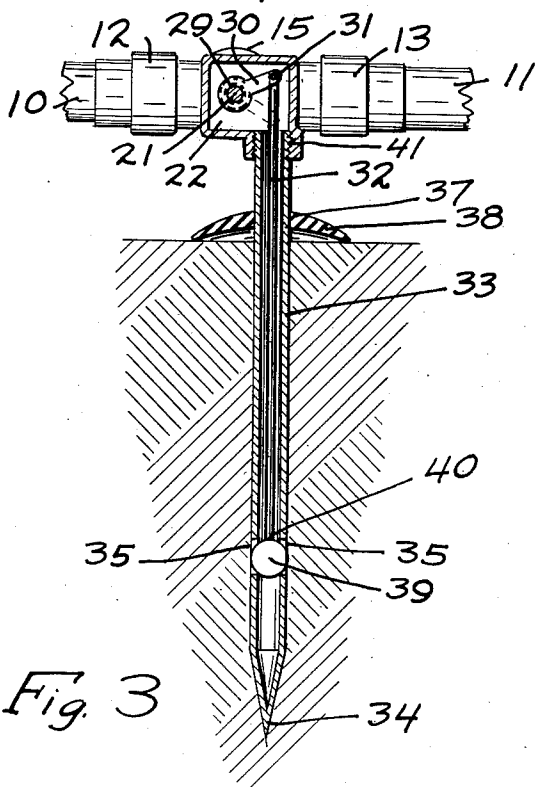


Fig. 3

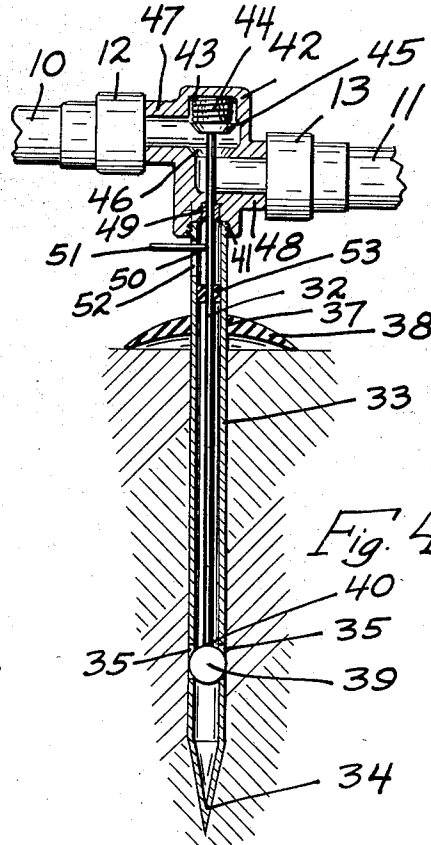


Fig. 4

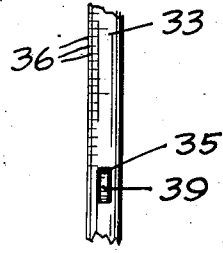


Fig. 5

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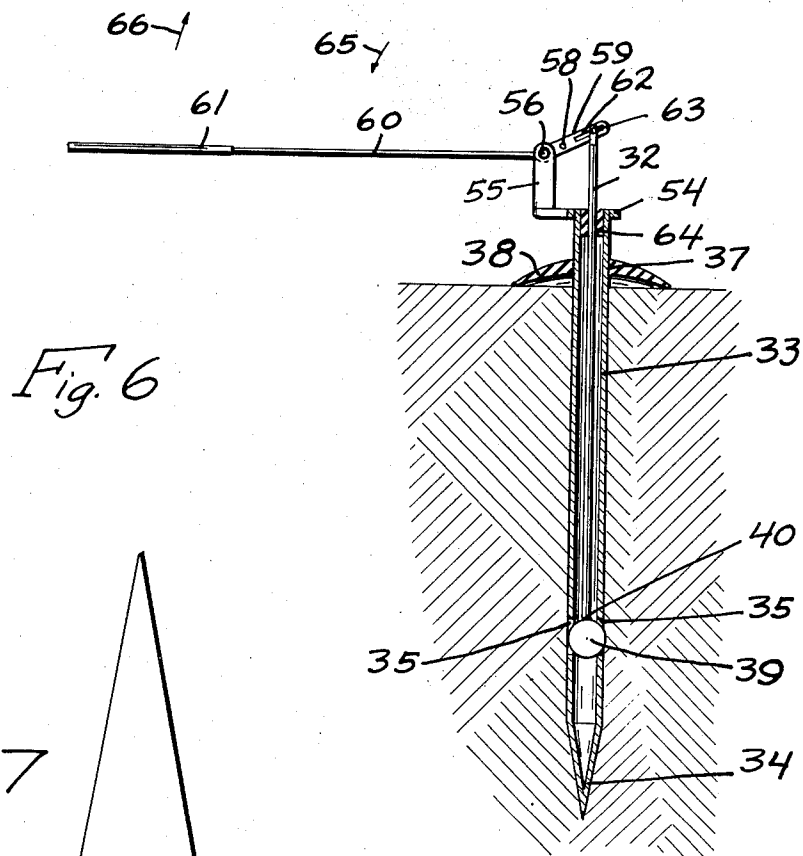
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2 Sheets-Sheet 2



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SHUT-OFF DEVICE FOR LAWN SPRINKLERS

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Application April 17, 1953, Serial No. 349,392

3 Claims. (Cl. 299—1)

My invention relates to a shut-off device for lawn sprinklers.

An object of my invention is to provide a device which will close a valve in a lawn sprinkler system when a predetermined moisture penetration has been effected, or in a modified form, a device which will indicate when such penetration has been effected.

A further object of my invention is to provide a simple device which operates in a relatively simple manner, and which can be readily inserted in the lawn sprinkler system.

A further object of my invention is to provide such a device which can be easily set for the required purpose.

With these and other objects in view, my invention consists in the construction, arrangement, and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 is a sectional view of one of the forms of the device taken substantially along the lines 1—1 of Figure 2,

Figure 2 is a plan view of the device shown in Figure 1, with a fragmentary section being taken thereof,

Figure 3 is a sectional view of the device shown in Figures 1 and 2 and taken substantially along the lines 3—3 of Figure 2,

Figure 4 is a modified form of the device,

Figure 5 is a detail,

Figure 6 is a vertical section taken through a further modification,

Figure 7 is a plan view of Figure 6, and

Figure 8 is an end view of the modification shown in Figures 6 and 7 when the indicating flag is raised.

My invention relates to a control device for lawn sprinkler systems, it being understood also that the device could be applicable to other water systems as well.

I have used the characters 10 and 11 to indicate generally the flexible rubber or other material hose of the usual water sprinkler type of hose, the characters 12 and 13 indicating the threaded couplings, and the character 14 the gaskets.

In the device of my invention I provide a valve housing member 15 in which is rotatably mounted the valve 16 having the port 17, the port 17 being adapted to communicate with the further longitudinal openings 18 and 19 which communicate with the hose members 10 and 11.

Attached to the valve member 16 at 20 is a horizontally positioned rod 21 which passes within a housing 22 having the cover 23, the cover 23 being attached in any suitable manner, and attached at the end of the shaft or rod 21 is a key 24, the shaft 21 passing through the member 23 at 25.

Receiving the shaft 21 is the coiled spring 26 which coiled spring is secured to the shaft 21 at 27 and at 28 to a portion of the valve housing.

Also attached to the shaft 21 at 29 is the arm 30 which

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is pivotally attached at 31 to a vertically positioned rod 32 which passes downwardly within the hollow tube 33 having the pointed end 34.

The tube 33 includes a pair of lateral vertically positioned passages or slots 35. The tube 33 includes a series of inch and fractions of inch markings 36 (see Figure 5) which extend from the top of the passageways 35 upwardly, and slidably and firmly engaged with the tube 33 at 37 is the rubber downwardly concave cup 38.

In using the device, a circular tablet 39 is inserted through either of the openings 35, or if preferred, one of the openings 35 can be made larger than the other so that one edge of the tablet will be held thereagainst more firmly. Before the tablet is inserted, however, the key 24 is rotated to thereby raise the rod 32 against the spring action to the position shown in Figure 3, the tablet 39 then being inserted and with the end 40 of the rod 32 bearing against the upper edge of the tablet 39. The tube 33 is threadably and tightly secured at 41 with the housing portion 22.

The tablet 39 is made of any suitable material which will rapidly disintegrate or dissolve in the presence of water, and the tube 33 is then forced downwardly into the soil until the required depth is indicated by the markings 36, and then the cup 38 is brought downwardly to the ground surface as shown in Figure 3.

During the sprinkling action, it will be noted that the device will remain in the position shown in Figure 3, however, as soon as the moisture reaches the depth of the tablet 39, it will dissolve or disintegrate, thereby releasing the rod 32 which will be forced downwardly by means of the spring 26 and which will correspondingly rotate the port 17 to the dotted or closed position shown in Figure 1, and thereby shutting off the water supply, accomplishing the results contemplated.

The rubber cup member 38 prevents water from running down along the tube 33 which would otherwise dissolve the tablet 39 too quickly, however, by providing this cup member, this cannot occur, thereby protecting the tablet against possible slight over-flow from the valve structure and the like.

Figure 4 illustrates a further modification wherein the same characters indicate similar portions of the device with the exception that a valve housing 42 is used, which housing includes the recessed portion at 43 for the reception of a spring 44 bearing against a tapered rubber valve 45 which is attached to the top of the rod 32, which valve is adapted to seat against the valve opening 46, the valve housing 42 including the further portions 47 and 48 for attachment to the couplings 12 and 13. The pressure side of the sprinkler arrangement is preferably on the side of the coupling 12 to protect the packed joints which will be explained, so that when the water is shut off, the pressure will not be applied against such packed joints.

The rod 32 passes through the packing 49, and attached to the rod 32 at 50 is the trigger or pin 51 which passes longitudinally within the slot 52.

The tablet and other portions of the device are the same as shown in Figure 3, and it will be noted in this arrangement that when the tablet disintegrates, the spring 44 will force the valve member 45 to closed position, thereby closing the sprinkler circuit in the same manner. A further gasketing member 53 is inserted within the tube 33 and snugly engages the rod 32 to also protect the tablet beneath the same in case moisture should penetrate downwardly from the valve within the tube 33. The arrangement is cocked by merely pulling upwardly on the pin 51.

A still further form of the device is shown in Figures 6, 7 and 8 in which the tube itself together with the tablet and other portions are approximately identical,

however, in this form of device the valve structure is not used, and attached at the top of the tube 33 is the bracket member 54 to which is attached the vertically positioned post 55, and secured to the post 55 is the transverse pin 56 which is received within a coiled spring 57 which spring is secured at 58 to the arm 59, which arm 59 is attached to the horizontally positioned rod 60. Attached at the outer terminal of the rod 60 is the thin metal flag member 61 which can be colored red or any other suitable color.

The coiled spring 57 is also attached to the post 55 and the arm 59 includes a lengthened slot at 62 through which is received the small pin 63 which is attached at the top of the vertical rod 32. The rod 32 is also packed by a suitable cylindrical gasket member 64 positioned at the top of the tube 33.

Figure 6 illustrates how this particular device is positioned, before the indicator operates, the setting of the mechanism being accomplished by moving the rod 60 downwardly in the direction of the arrow 65 and thence inserting the tablet 39. The tube 33 is then thrust into the ground to the required depth, and it will now be noted that when the tablet 39 disintegrates, the spring will cause the rod 60 to be carried upwardly in the direction of the arrow 66, whereupon the flag will be raised as shown in the end view Figure 8, thereby indicating that the proper moisture depth has been obtained so that the water can then be shut off in the sprinkler system.

It should be realized that the device of my invention could be used in other locations or environments as well, the principal features being the disintegrating tablet together with the vertically positioned tube structure and the like.

It will now be seen that I have provided the various advantages set forth in the objects of my invention with various other advantages being readily apparent.

Some changes may be made in the construction and arrangement of the parts of my invention without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim as my invention:

1. A device of the character described comprising a vertically positioned tube, a rod within said tube, a dissolvable tablet secured in said tube against which said rod bears, spring means for forcing said rod downwardly when said tablet is dissolved, a valve connected to said rod for turning off a water supply when said rod is actuated, said tube having markings thereon to indicate the depth between a ground surface and said tablet, a moisture protecting member snugly engaging said tube and extending therefrom.

2. A device of the character described comprising a vertically positioned tube, a rod within said tube, a dissolvable tablet secured in said tube against which said rod bears, spring means for forcing said rod downwardly when said tablet is dissolved, a valve connected to said rod for turning off a water supply when said rod is actuated, said tube having markings thereon to indicate the depth between a ground surface and said tablet, said valve including a valve housing, said housing including means for attaching sprinkler hose sections thereto, said valve including a valve member attached at the upper termination thereof, a valve seat communicating between said hose sections, said spring means including a coiled spring bearing against said valve member.

3. A device of the character described comprising a vertically positioned tube, a rod within said tube, a dissolvable tablet secured in said tube against which said rod bears, spring means for forcing said rod downwardly when said tablet is dissolved, a valve connected to said rod for turning off a water supply when said rod is actuated, said valve including a valve housing, said housing including means for attaching sprinkler hose sections thereto, said valve including a valve member attached at the upper termination thereof, a valve seat communicating between said sprinkler hose sections.

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