Oct. 10, 1944. J. D. COX 2,360,203

LAWN SPRINKLER

Filed June 15, 1943

Fig. 1.

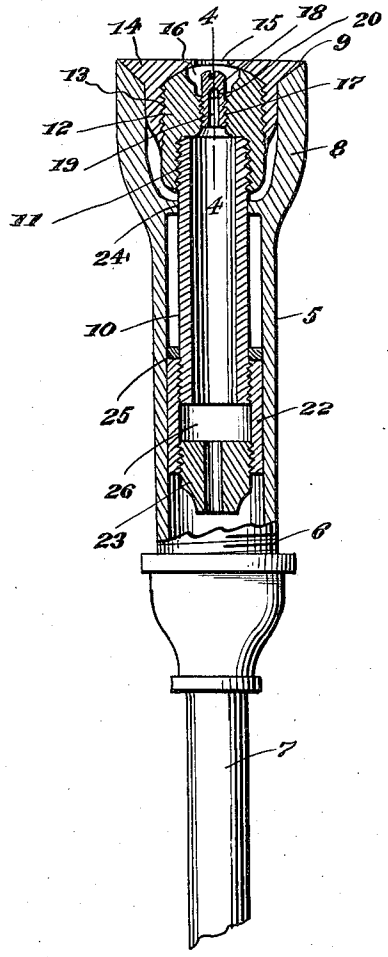


Fig. 3.

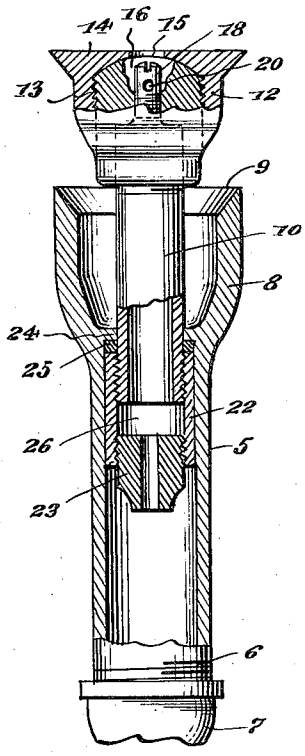


Fig. 2.

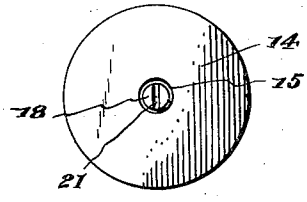
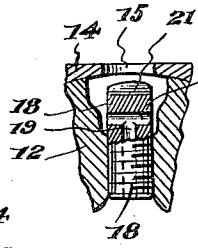


Fig. 4.



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Patented Oct. 10, 1944 2,360,203

UNITED STATES PATENT OFFICE

2,360,203

LAWN SPRINKLER

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Application June 15, 1943, Serial No. 490,833

3 Claims. (Cl. 299—61)

This invention relates to lawn sprinklers and more particularly to an automatic pop-up sprinkler head and protector especially designed for use in connection with multiple sprinkler systems.

The object of the invention is to provide a simple and inexpensive sprinkler head, the construction of which is such that when the sprinkler is not in use, the head thereof will be disposed flush with the surface of the ground so as to allow a lawn mower or other equipment to pass freely thereover without injury to said head, and, when the water is turned on, the pressure of the water will automatically elevate the head and permit the water to be discharged laterally therefrom in the form of a spray over the adjacent surface of the lawn.

A further object is to provide a lawn sprinkler including a stationary casing having means for attachment to a water supply pipe and a hollow stem slidably mounted for vertical movement within the casing and having its upper end provided with a sprinkler head and its lower end formed with a choke valve or nozzle.

A further object is to provide the upper end of the stationary casing with a bowl or basin adapted to receive and protect the sprinkler head when not in use and further to provide means within the casing for entering and guiding the vertically movable hollow stem.

A further object is to provide the sprinkler head with a hollow adjustable screw for regulating the amount of spray discharge from the head.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency, as well as to reduce the cost of manufacture.

In the accompanying drawing:

Figure 1 is a vertical sectional view, partly in elevation, of an automatic pop-up sprinkler head and protector constructed in accordance with the present invention and showing the sprinkler head housed within the protecting bowl of the casing.

Figure 2 is a top plan view.

Figure 3 is a vertical sectional view showing the sprinkler head in elevated position.

Figure 4 is an enlarged detail sectional view taken on the line 4—4 of Figure 1.

The improved sprinkler head forming the subject matter of the present invention is particularly designed for use in connection with multiple sprinkler systems and since as many of said sprinkler heads can be used as desired, a detail description of one head or unit will suffice.

The device comprises a stationary outer member or casing 5 having its lower end threaded at 6 for attachment to a water supply pipe 7. The upper end of the casing 5 is enlarged to form a protecting bowl 8, the upper edge of which is downwardly inclined or beveled, as indicated at 9.

Slidably mounted for vertical movement within the casing 5 is a hollow stem 10 and threaded at 11 on the upper end of said stem is a solid head 12 having its exterior wall at the upper portion thereof, threaded as indicated at 13, for detachable engagement with a removable cap plate or cover 14, the peripheral edge of which is downwardly inclined or beveled for engagement with the beveled upper edge 9 of the bowl 8, as best shown in Figure 1 of the drawing. The cap or cover plate 14 is formed with a centrally disposed discharge opening 15 and formed in the head 12, in vertical alinement with the opening 15, is a depression or basin 16, preferably formed by boring or cutting away the metal constituting the head.

Communicating with the basin 16 is a threaded bore 17 and engaging the threads of said bore is a correspondingly threaded adjusting screw 18. The screw 18 is provided with a longitudinal bore 19 and communicating with said bore are a plurality of lateral openings 20 which discharge into the basin 16, as shown. The upper end of the adjusting screw is formed with a transverse kerf or notch 21 adapted to receive a screw driver or other suitable tool for the purpose of adjusting the screw to regulate the discharge of water from the sprinkler head. Threaded on the lower end of the stem 10 is a guide sleeve 22 and threaded in the lower end of the sleeve is a choke valve or reducing nozzle 23 for the purpose of increasing the velocity of the water passing through the sleeve and cause the sprinkler head to pop up or be moved to elevated position the moment the water is turned on. Projecting inwardly from the casing 5 is an annular guide rib 24 and surrounding the stem 10 at the upper end of the guide sleeve 22 is a gasket 25 which prevents leakage of water and, by contact with the rib 24, also serves to cushion the impact of the sprinkler head when the latter is moved to elevated or operative position. As the sleeve 22 engages the exterior wall of the choke valve or reducing nozzle 23 and the stem 10, an intermediate chamber 26 is provided between said parts which chamber serves to increase the pressure on the sleeve and also to accumulate a reserve pressure for each unit of the multiple sprinkler system.

In operation, the units are embedded in the

ground with the cap plate **14** of each unit disposed flush with the adjacent surface of the lawn so as to allow a lawn mower or other equipment to pass freely thereover without injury to the sprinkler head. When the water in the supply pipe **7** is turned on, said water will flow upwardly through the choke valve or reducing nozzle **23**, thereby increasing the velocity of the water, and as the water comes in contact with the head **12**, it will automatically elevate the same above the surface of the lawn to the position shown in Figure 3 of the drawing, and in which position it will remain as long as the water is turned on. Water flowing through the hollow stem **10** will enter the bore of the adjusting screw and thence flow laterally through the openings **20** into the basin **16**, and thence outwardly through the central opening **15** in the head **14**, in the form of a fine spray. By adjusting the screw **20**, the amount of spray discharged from the head may be varied at will. By forming the sprinkler head in two sections, the parts can be readily unscrewed to permit ready access to the adjusting screw and its associated parts and also to facilitate assembling and disassembling the different parts of the sprinkler head. It will here be noted that the bowl **8** not only serves to house and protect the sprinkler head when not in use but the beveled edge **9** of the bowl serves to guide the head to its seat in the bowl and forms a seal between the parts to effectually prevent the entrance of dirt and dust within the bowl. It will, of course, be understood that the sprinkler heads may be made in different sizes and shapes and as many sprinkler heads employed in the sprinkling system as is found desirable or necessary.

Having thus described the invention, what is claimed is:

1. A device of the class described comprising a stationary casing having its upper end fashioned to form a bowl and its lower end provided with means for attachment to a water supply pipe, there being a guide rib extending inwardly from the casing adjacent said bowl, a hollow stem slidably mounted for vertical movement within the casing, a reducing member connected with the lower end of the stem, a sprinkler head on the other end of the stem and including inner and outer inter-threaded members adapted to fit within said bowl, the outer member being provided with a central opening and the inner member having threaded engagement with the adjacent end of the stem and provided in its upper end with an upwardly flared shallow basin having a threaded bore communicating therewith and disposed in alinement with said opening, said basin at its upper end being larger than said opening in said outer member, and an adjusting screw engaging the threads of said bore and provided with lateral openings communicating with the basin, said adjusting screw being provided with a kerf for engagement by an operating tool.

2. A device of the class described comprising a stationary casing having its upper end fashioned to form a bowl, the upper edge of which is beveled inwardly and downwardly, a water supply pipe connected with the lower end of the casing, said casing being formed adjacent said bowl with an inwardly extending guide rib, a guide sleeve threaded on the lower end of the stem, a reducing nozzle threaded in said guide sleeve, a gasket fitting around the stem at the upper end of the guide sleeve and adapted to contact with the guide rib, a sprinkler head detachably mounted on the upper end of the stem and including inner and outer inter-threaded members, the outer member being provided with a beveled edge adapted to engage the beveled edge of the bowl and provided with a central opening and the inner member being threaded on the upper end of the stem and provided with a central threaded bore, there being an upwardly flared basin formed in the inner member communicating with said bore and opening, said central opening being smaller than the upper end of said basin, and a hollow adjusting screw engaging the threads in the bore and provided with lateral openings discharging into said basin.

3. A device of the class described comprising a stationary casing having its upper end fashioned to form a bowl and its lower end provided with means for attachment to a source of water supply, a stem slidably mounted for vertical movement within the casing, a guide sleeve slidably mounted in said casing, one end of said stem being connected with said guide sleeve, a reducing nozzle threaded into one end of said guide sleeve and movable therewith, and a sprinkler head mounted on the upper end of the stem and including inner and outer interengaging threaded members, the outer member being provided with a central opening and the inner member formed with a shallow basin having a threaded bore communicating therewith and disposed in alignment with said opening, and an adjusting screw engaging the threads of the bore and provided with transverse openings discharging into said basin.

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