

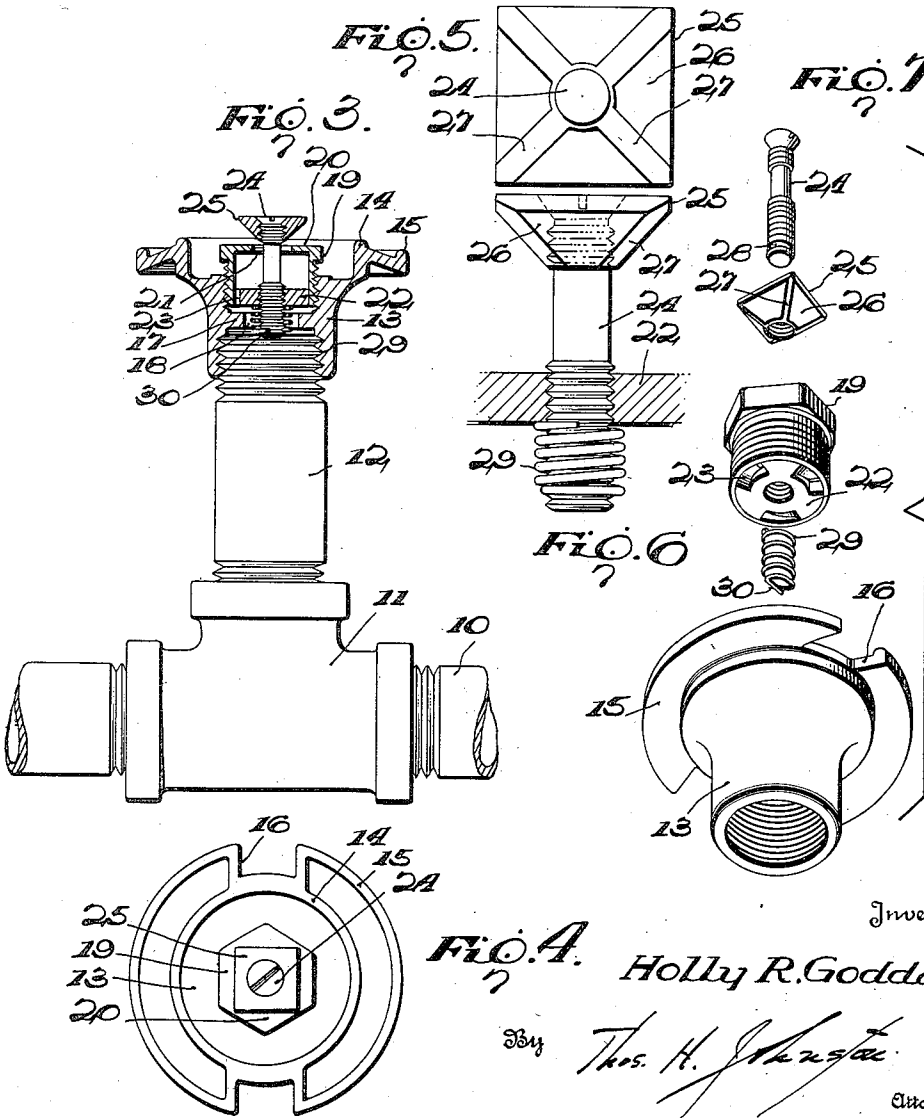
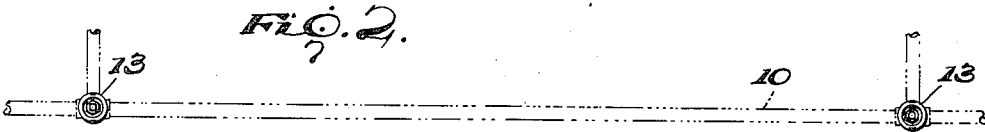
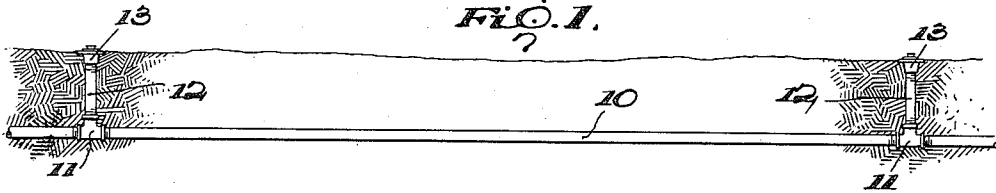
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H. R. GODDARD

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LAWN SPRINKLER HEAD

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Inventor

FIG. 4. Holly R. Goddard

By *Thos. H. Gustaf*
Attorney

UNITED STATES PATENT OFFICE

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LAWN SPRINKLER HEAD

Holly R. Goddard, North Hollywood, Calif.

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1 Claim. (Cl. 299—18)

1

This invention relates to an improved lawn sprinkler head.

The invention is primarily designed for use as a part of a sprinkler system wherein a number of the heads will be respectively connected at suitable intervals with an underground pipe network for sprinkling large areas, although, however, the head is equally suitable for use as an individual unit carried by an appropriate portable stand.

It has been found highly desirable, in such a system, to employ a spray of rectangular pattern, as the overlapping watering of meeting marginal areas between two adjacent sprays, as experienced in connection with sprays of circular pattern, may thereby be avoided. However, as will be appreciated, it is also highly desirable, for the reason noted, to provide a spray wherein the rectangular pattern thereof will be precise, and wherein the spray-pattern screw employed will retain its adjusted position fixed against the impact of the water tending to rotate the screw out of adjustment to create a condition such that two adjacent sprays of rectangular pattern would not be parallel to each other.

The present invention therefore has as its objects to provide a sprinkler head which will furnish a spray of rectangular pattern, wherein the rectangular pattern of the spray will be concise, wherein overlapping watering of the area covered by the spray at the diagonal angles between the side and end portions of the spray pattern will be minimized, wherein the spray-pattern screw employed may be adjusted without molesting any of the other parts, simply by turning the screw with the fingers at the top of the head, thus to vary the density of the spray as well as the area covered thereby, wherein said screw will be yieldably locked automatically in any adjusted position so that when once the screw is set to produce a spray which will cover a given area, the screw may not, through the force of water thereon, move out of adjusted position, and wherein the hollow carrier plug which mounts the spray-pattern screw will provide a valve which may, without displacement of any of the other parts, be manually turned to shut off flow of water through the head, so that, if so desired, chosen heads of a sprinkler system may be closed.

Other and incidental objects will appear during the following description of the invention, and in the drawings:

Figure 1 is a fragmentary vertical section showing a sprinkler system embodying my invention.

2

Figure 2 is a plan view of the water supply pipe and sprinkler heads.

Figure 3 is a vertical section through the head, associated parts being shown in elevation.

Figure 4 is a top plan view of the head.

Figure 5 is an enlarged bottom plan view of the head of the spray-pattern screw.

Figure 6 is an enlarged detail elevation of the screw.

Figure 7 is a perspective view showing the parts in proper relative position but detached from each other.

Referring now more particularly to Figures 1 and 2 of the drawings, I have shown my improved lawn sprinkler head in conjunction with a sprinkler system embodying any required number of water supply pipes, one of which is shown at 10. Interposed in said pipe at suitable intervals are couplings 11, and rising from said couplings are nipples 12 to each of which the sprinkler head of the present invention is attached, it being noted, in Figure 1, that the upper surfaces of the heads are disposed close to the surface of the ground.

In carrying the invention into effect, I employ a cylindrical shell 13 internally threaded at its lower end to engage one of the nipples 12 and provided at its upper end with an enlarged annular rim 14 from which projects a circular flange 15. Formed in the flange 15 are notches 16 to receive a spanner wrench so that the device may be readily engaged with the nipple 12. Extending within the lower end portion of the shell is a flange 17 formed centrally with an opening 18. The upper surface of this flange is flat and smooth to provide a valve seat.

Screwed into the upper end of the shell 13 is a hollow removable carrier plug 19 having a top wall 20 in which is formed a central discharge orifice 21. Fixed in the lower end of the plug is a spider 22 having, as particularly seen in Figure 7, spiral slots 23 therein. Thus, water rising from the nipple 12 through the opening 18 of the flange 17 of the shell 13 and through said slots will be given by the spirally curved upper walls of said slots a swirling motion within the plug.

Engaged centrally through the spider 22 of the plug 19 is a spray-pattern screw 24, and screwed thereon to abut the head of the screw is a rectangular spray head 25. In the present instance, I have shown the head to be substantially square. However, an oblong head could be employed, and by making the head detachable, heads of different shape may be substituted one for another.

3

As will be observed, the head 25 is of inverted frusto-pyramidal over-all shape and is provided with four flat substantially triangular inclined faces 26. Experiment has shown that flat faces, as compared with convex faces, or faces of other curved contour, produce a more concise spray pattern. Extending radially from the apex of the head between the faces 26 thereof are diagonal flat faces 27.

Assuming that water from the discharge orifice 21 of the plug 19 is impinging against the faces 26 of the head 25, it will at once be seen that said faces will divert the water into four upwardly flowing sheets widening toward the upper peripheral margin of the head. Therefore, these sheets of water, if not checked, will seriously overlap each other to result in a double watering of portions of the area covered by the spray. Channels in lieu of the flat faces 27 have been tried, but channels result in undesirable jets of water issuing from the corners of the head. In contrast, the flat faces 27 have been found to be the best. Narrow sheets of water will, of course, flow upwardly along said faces and due to the sharp angles provided between the faces 26 and 27, said narrow sheets of water will tend to retain a uniform width and thus deter spreading of the sheets of water on the faces 25 of the head without the formation of more or less solid jets of water at the corners of the head.

Formed in the periphery of the screw 24 near its lower end is a transverse slot 28, and surrounding the lower end portion of the screw to abut at its upper end against the spider 22 of the plug 19 is a removable spring 29. Formed on the spring at its lower end is a straight transverse leg 30 which seats in the slot 28 and detachably connects the spring with said screw.

It is now to be noted that the screw 24 may be adjustably turned by hand to vary the volume of the swirling column of water issuing through the discharge orifice 21 for varying the density of the

4

spray as well as the area thereof. When so adjusted, the spring 29 will frictionally coact with the spider 22 of the plug 19 for yieldably locking the screw in adjusted position. Thus, the impact of said column of water against the head 25 and tending by reason of the swirling motion thereof to rotate the screw 24 out of adjusted position will be prevented.

If so desired, the plug 19 may be screwed down within the shell 13 until the plug engages the flange 17. The central portion of the spider 22 will then coact with the seat formed by said flange to close the opening 18 and shut off the flow of water through the shell. The plug 19 accordingly provides a manually operable valve which may be readily closed, so that, if deemed expedient, chosen heads of a sprinkler system may be easily rendered inoperative.

Having thus described my invention, I claim:

A sprinkler head including a shell, a plug mounted therein, and a spray-pattern screw carried by said plug and provided with an inverted substantially pyramidal head having flat substantially triangular side faces and an upper face, said triangular side faces being separated by elongated flat faces extending substantially from the inverted apex substantially to the upper face.

HOLLY R. GODDARD.

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