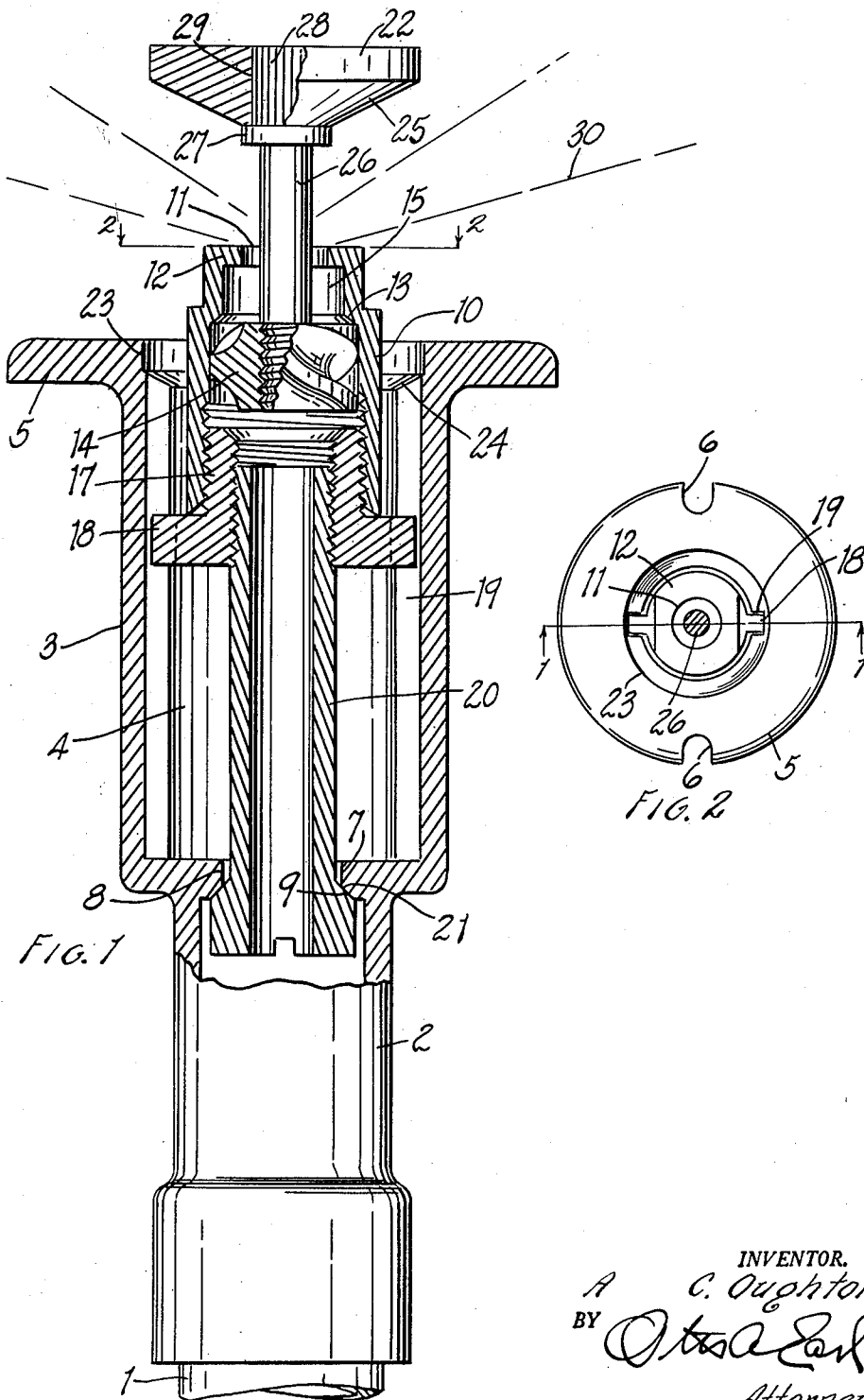


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DISAPPEARING SPRINKLER

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DISAPPEARING SPRINKLER

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1 Claim. (Cl. 299—61)

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This invention relates to improvements in disappearing sprinkler.

The main objects of this invention are:

First, to provide a spray or sprinkling head well adapted for use in lawn sprinkling systems, which is of relatively large capacity distributing the water discharged therefrom in a spray form uniformly over a considerable area.

Second, to provide a spray head in which the nozzle is not likely to become clogged and is fully protected when the nozzle is retracted and at the same time the nozzle is automatically projected to operative position by the water.

Third, to provide a spray head embodying these advantages which is simple in these parts and easily assembled and disassembled.

Further objects in which:

Fig. 1 is an enlarged fragmentary view mainly in vertical section of a spray head embodying my invention on a line corresponding to line 1—1 of Fig. 2, the spray head being illustrated in its projected or actuated position.

Fig. 2 is a plan view in section on a line corresponding to line 2—2 of Fig. 1.

In the embodiment of my invention illustrated, 1 represents the riser of a water supply system. The body member 2 is threaded upon this riser and is provided with an enlarged upper portion 3 defining a nozzle chamber 4 adapted to house the nozzle when it is in its retracted position. The body member is provided with a flange 5 at its upper end notched at 6 to receive a tool for applying the spray head to or removing it from the supply pipe or riser.

The body member is provided with an internal shoulder 7 at the lower end of the nozzle chamber 4, defining a port 8 surrounded by a downwardly facing valve seat 9. The tubular nozzle member 10 is provided with a central opening 11 in its tip 12. The nozzle member is internally shouldered at 13 to provide a seat for the swirl producing member 14 which is desirably a press fit in the nozzle member. The shoulder 13 spaces the swirl member from the tip providing a swirl chamber 15 causing a swirling turbulence therein.

A coupling member 17 is threaded into the lower end of the nozzle member and, in effect, constitutes a part thereof. This coupling member is provided with laterally projecting lugs 18 slidably engaging the vertical grooves 19 in the wall of the nozzle chamber 4. The nozzle member is provided with a tubular stem 20 which is threaded into the coupling member and provided with a valve 21 coacting with the valve seat 9.

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A cover member 22 is adapted to seat or close in the recess 23 provided therefore at the upper end of the body member. The bottom 24 of this recess is preferably inclined inwardly so that the inverted conical face 25 of the cover member seats thereon. This avoids the collection of dirt or the like which would prevent the closing of the cover. The cover member is carried by a shank or post 26 which is threaded into the swirl member 14 and supported thereby in central relation to the discharge opening 11 coacting with the wall of the opening to provide an annular discharge opening from the swirl chamber 15.

In the embodiment illustrated the shank or post 26 is provided with a collar-like enlargement 27 above which is a longitudinally knurled or serrated portion 28 forced into the bore 29 in the cover member. This provides a fixed connection for the cover member to its post or shank and the shank is fixedly connected by means of the screw engaging the swirl member 14 of the nozzle. When the nozzle is retracted the top of the cover member is flush with the top of the body member flange 5. When the nozzle member is retracted or collapsed the valve 21 leaves its seat allowing water to drain from the nozzle chamber. However, the pressure of the water effectively lifts the nozzle to the discharge position. The discharge of the water is indicated by dotted lines 30 and it should be noted that the cover member is supported in elevated position relative to the discharge so that the discharge is not baffled or retarded thereby, thus permitting discharge over a relatively wide area.

The water is reduced to a spray form by means of the swirl member, the swirl chamber, and the annular discharge opening. The annular discharge opening is not likely to clog but should material lodge therein it is discharged by a surge of water when the water is turned into the head. In Fig. 1 the parts are shown considerably enlarged, Fig. 2 being of dimensions corresponding to a desirable commercial size. It will be understood, however, that the dimensions may be varied according to the conditions such as volume and pressures available.

I have illustrated and described my invention in a highly practical commercial embodiment thereof. I have not attempted to illustrate or describe certain embodiments or adaptations which I contemplate as it is believed that this disclosure will enable those skilled in the art to embody or adapt my invention as may be desired.

Having thus described my invention, what I

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claim as new and desire to secure by Letters Patent, is:

In a disappearing sprinkler the combination of a tubular body member having a nozzle chamber at its upper end and having a port at the bottom of said chamber surrounded by a downwardly facing valve seat, said chamber having a vertical guide groove in the wall thereof and being provided with an annular recess at its upper end, said recess having an annular shoulder at the bottom thereof constituting a seat engagingly supporting said cover when closed, a tubular nozzle member having a central discharge opening in its tip, a swirl passage member positioned within said nozzle member in vertically spaced relation to its discharge opening and having spiral peripheral grooves coacting with the walls of the nozzle member to provide spiral passages discharging into the nozzle member in spaced relation to its discharge opening, a coupling member threaded into the lower end of said nozzle member and provided with a guide lug engaging said groove in said body member, a tubular stem threaded into said coupling member and having an upwardly facing valve at its lower end coacting with said valve seat when the nozzle is in elevated position, and a cover for said body member provided with a shank threaded into said passage member and

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disposed centrally of the nozzle member discharge opening and coacting with the wall of said opening to provide an annular discharge opening for the nozzle, the cover being adapted to close within said recess and engage said cover seat in the upper end of the body member when the nozzle is in retracted position, the cover being supported by its shank in substantially spaced relation to the nozzle tip and out of the path of the discharge from the nozzle, said cover, nozzle member, swirl member and valve all being fixedly associated relative to each other to move as a unit relative to said chamber, said cover, cover receiving recess, valve and valve seat being relatively spaced so that when the cover is received in said recess then said valve is spaced from said valve seat.

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