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AUTOMATIC WATER SPRINKLER CONTROL VALVE

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Fig. 1.

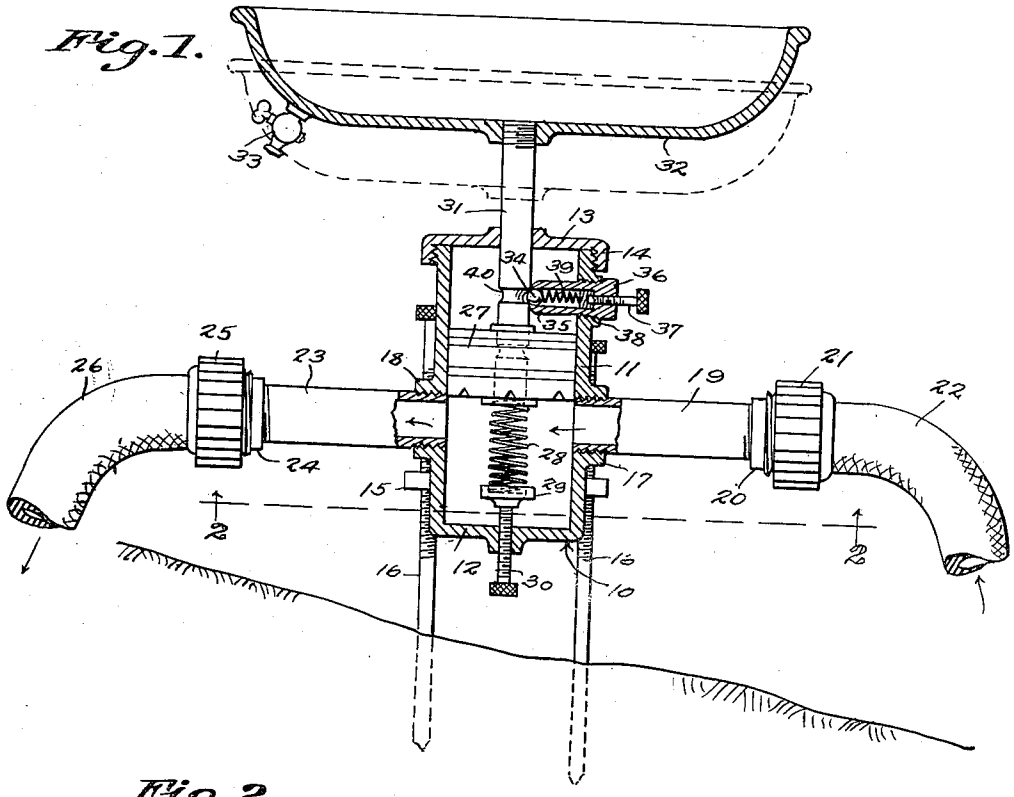
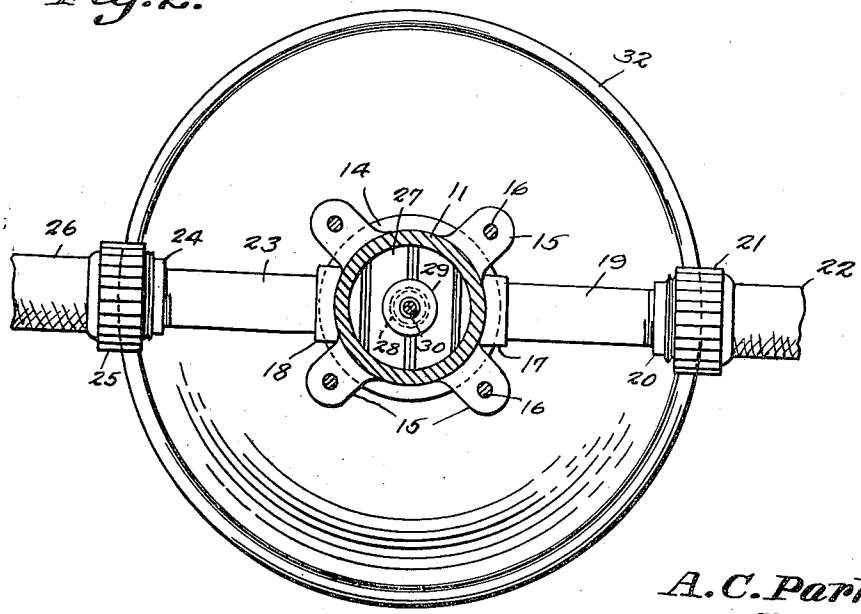


Fig. 2.



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AUTOMATIC WATER SPRINKLER CONTROL VALVE

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4 Claims. (Cl. 299—25)

This invention relates to an automatic water sprinkler control valve.

An object of this invention is to provide a valve structure for interposing in a sprinkler supply line which includes means whereby the water will be automatically cut off when a predetermined amount of water has been discharged from the sprinkler or sprinkler system.

Another object of this invention is to provide an automatically operable valve for a water sprinkling system which can be mounted in a position to receive a quantity of the water which is sprayed or sprinkled so that when a predetermined quantity of water has been sprayed and collected by the collecting pan forming part of the control device, the water is automatically cut off.

A further object of this invention is to provide an automatically operable sprinkler control valve which can be adjusted to provide an automatic turning on and turning off of the valve which is interposed in a sprinkler supply line.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combination of parts, hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

Referring to the drawing:

Figure 1 is a vertical section partly in detail of a water control valve structure constructed according to an embodiment of this invention.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1.

Referring to the drawing, the numeral 10 designates generally a valve housing which includes a cylindrical valve 11 having a bottom wall 12. The body 11 is closed at the upper end thereof by a cap 13 having a threaded flange 14 which threadedly engages the outer end of the body 11. The body 11 is provided with outwardly projecting ears 15 through which valve supporting rods or stakes 16 are threaded so that the valve body 11 may be disposed in a vertical position with the rods or stakes 16 projected into the ground regardless of the contour or level or even condition of the ground.

The body 11 is provided at a point between the upper and lower ends thereof with an intake boss 17 and is also provided with an outlet boss 18 opposite the intake boss 17. A short length of pipe or nipple 19 has threaded on the outer end thereof one portion 20 of a union. The second portion 21 of the union is swivelly carried by the adjacent end of a flexible boss 22 which has connected at the opposite end thereof to a source of water supply. The outlet boss 18 has threaded thereinto a short length of pipe or nipple 23 having one part 24 of a second union threaded thereon. The complementary part 25 of the union is threaded onto the union part 24 and is swivelly carried by a discharge hose line 26. The hose line 26 is adapted to be connected to a sprinkler system for sprinkling the surface of the ground.

In order to provide a hose whereby the water may be

automatically cut off when a predetermined quantity of water has been discharged by the sprinkler system, I have provided the combined piston and valve plug 27. The valve plug 27 is slidable in the cylindrical body 11 and is constantly urged upwardly to an open position by means of a spring 28 which engages the bottom of the plug 27. The lower end of the spring 28 is seated in a cup 29 which is swivelly carried by the upper or inner end of a spring tensioning screw 30. Screw 30 is threaded through the bottom wall 12 and the adjustment of the screw 30 is such that the proper tension may be applied to spring 27 in order to normally hold the valve plug or piston 27 in an upper open position. A piston rod or stake 31 is secured to the upper end of the piston or plug 27 and slidably engages through the cap 13. A pan or water collector 32 is threadedly mounted on the upper end of the stem 31 and a petcock or drain valve 33 is mounted in the lower portion of the pan or collector 32.

In order to provide means whereby the valve plug 27 may be held in an upper and open position until a predetermined quantity of water has been collected in the pan or collector 32, I have provided a spring-pressed ball 34 which is carried by a tubular housing 35. The housing 35 is threaded through the upper portion of the body 11 and is formed with an outer head 36 through which a spring adjusting screw 37 engages. A plunger 38 is slidable in the tube 35 and bears against the outer end of a ball tensioning spring 39. The opposite or inner end of the spring 39 bears against the ball 34 so as to yieldably hold the ball 34 in an annular groove 40 which is formed in the stem 31. The tension of the spring 39 is so adjusted as to cooperate with the spring 28 in yieldably holding and locking the stem 31 against downward movement until a predetermined quantity of water has been collected in the pan 32.

In the use and operation of this device the housing 11 is interposed in the water supply line by connecting the nipples 19 and 23 to the couplings 21 and 25. In the normal sprinkling position of the valve plug 27 this plug is in an open position and is held in this position by means of the ball 34 and the spring 28. If it is desired to discharge a quantity of water from the sprinkler head or sprinkler system the petcock 33 is closed so that no water will be drained from the collector or pan 32. Spring 39 is adjusted as to the tension thereof so that this spring will release ball 34 from groove 40 when pan or collector 32 is substantially filled. At this time the weight of the water in pan 32 will move valve plug 27 downwardly to a position intersecting and closing ports formed by the bushings or bosses 17 and 18.

The system will be automatically turned on again when the water in pan 32 has evaporated or has been drained therefrom. Under certain conditions the petcock 32 may be partially opened so as to drain out the water from the pan or collector 32 at a speed slightly less than the speed at which the water accumulates or is formed in pan 32. If it is desired to run the sprinkler system continuously for a predetermined length of time petcock 33 may be completely opened so that any water collected in pan 32 will immediately drain out therefrom. Under this condition valve plug 27 will be yieldably held in its open position as shown in full lines in Fig. 1.

What is claimed is:

1. A sprinkler control means comprising a valve housing, means interposing said housing in a water supply line, a valve plug slidable in said housing, said housing having opposed inlet and outlet ports, means supporting said housing with the longitudinal axis thereof in a vertical position, a spring in said housing constantly urging said plug upwardly to open position, a stem fixed to said plug extending upwardly of said housing, said stem having an annular keeper groove within said housing, a

spring-pressed locking ball carried by said housing engageable in said groove when said plug is in an upper open position, and a collector secured to the upper end of said stem adapted to collect water discharged from the sprinkler, the weight of the water in said collector effecting downward movement of said plug to closed position.

2. A sprinkler control means comprising a valve housing, means interposing said housing in a water supply line, a valve plug slidable in said housing, said housing having opposed inlet and outlet ports, means supporting said housing with the longitudinal axis thereof in a vertical position, a spring in said housing constantly urging said plug upwardly to open position, a stem fixed to said plug extending upwardly of said housing, said stem having an annular keeper groove within said housing, a spring-pressed locking ball carried by said housing engageable in said groove when said plug is in an upper open position, a collector secured to the upper end of said stem adapted to collect water discharged from the sprinkler, the weight of the water in said collector effecting downward movement of said plug to closed position, and means tensioning said locking ball whereby said plug will be released when a predetermined quantity of water has been collected in said collector.

3. A sprinkler control means comprising a valve housing, means interposing said housing in a water supply line, a valve plug slidable in said housing, said housing having opposed inlet and outlet ports, means supporting said housing with the longitudinal axis thereof in a vertical position, a spring in said housing constantly urging said plug upwardly to open position, a stem fixed to said plug extending upwardly of said housing, said stem having an annular keeper groove within said housing, a spring-pressed locking ball carried by said housing engageable in said groove when said plug is in an upper open position, a collector secured to the upper end of said stem adapted to collect water discharged from the sprinkler, the weight of the water in said collector effecting downward movement of said plug to closed position, means tensioning said locking ball whereby said plug will be released when a predetermined quantity of water has been collected in said collector, and means for selectively draining water from said collector.

4. A sprinkler control means comprising a valve housing having opposed inlet and outlet ports, means interposing said housing in a sprinkler supply line, a spring pressed valve plug slidable in said housing and normally urged to open position, a stem fixed to said plug and projecting above said housing, a collector carried by the upper end of said stem and adapted to collect water from the sprinkler, the weight of water in said collector moving said plug downwardly to open position, and spring-pressed holding means engageable with said stem for holding said plug against movement until a predetermined quantity of water has been collected in said collector.

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