Feb. 16, 1932. A. J. MILLER 1,845,618

SPRINKLER HEAD FOR AN UNDERGROUND WATER SYSTEM

Filed Oct. 4, 1929

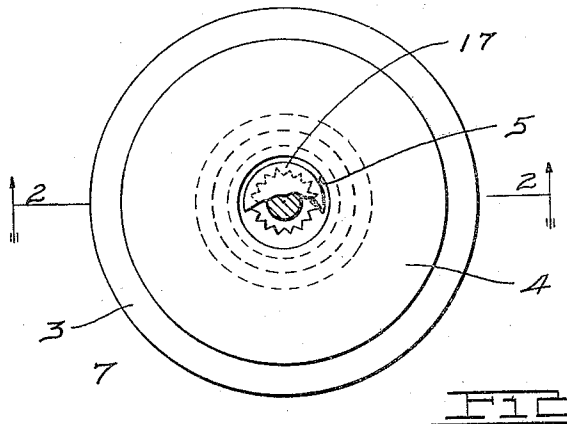


Fig. 1.

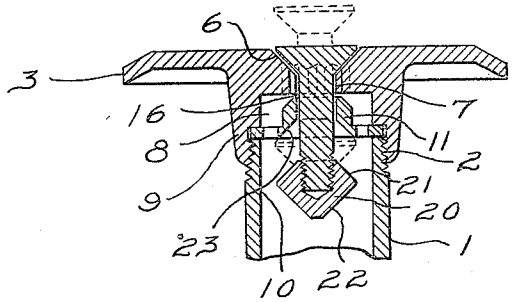


Fig. 2.

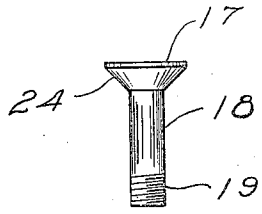


Fig. 3.

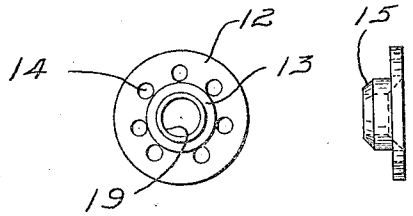


Fig. 5. Fig. 6.

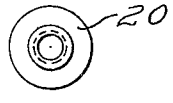


Fig. 4.

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UNITED STATES PATENT OFFICE

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SPRINKLER HEAD FOR AN UNDERGROUND WATER SYSTEM

Application filed October 4, 1929. Serial No. 397,186.

This invention relates to a sprinkler head for an underground water system.

This invention relates more particularly to a sprinkler head for an underground water system wherein the outlet port of the sprinkler head is positioned substantially flush with the surface of the ground. In this type of sprinkler head it is old to provide a valve for the outlet port which remains closed when the water is turned off to prevent the ingress of dirt into the sprinkler head and which is raised into opened position by the pressure of the water when the same is turned on. It is the object of this invention to present a sprinkler head of this general type wherein the valve is used not only to prevent dirt from entering the sprinkler head when inactive but also for the purpose of directing and forming the water spray and to provide a simple and efficient guide means for the sprinkler head valve.

In the drawings:

Fig. 1 is a plan view of the sprinkler head with the valve partly broken away.

Fig. 2 is a section along the line 2—2 of Fig. 1.

Fig. 3 is a detail of the valve stem and head.

Fig. 4 is a further detail of the valve head.

Figs. 5 and 6 are details of the sprinkler head core and guide.

Referring more particularly to the drawings, the water feed pipe may be referenced 1 and has suitably threaded thereon as at 2, the sprinkler head 3. The sprinkler head 3 has the upper surface 4 which is adapted to be positioned substantially flush with the surface of the ground. The sprinkler head 3 has the centrally located orifice 5. The orifice 5 consists of the upper inverted conical portion 6 and the lower vertically serrated portion 7 which communicates with the chamber 8 in the sprinkler head 3.

The sprinkler head 3 has an annular shoulder 9. When the sprinkler head 3 is threaded onto the water feed pipe 1, the annular shoulder 9 cooperates with the upper end 10 of the feed pipe to form an annular recess for the reception of the core 11. The core 11 is shown in detail in Figs. 5 and 6 and consists of the annular flange portion 12 and the upstanding core portion 13. The flange 12 is arranged to be held securely in position between the shoulder 9 of the sprinkler head 3 and the end of the feed line 1. The flange 12 is provided with suitable apertures 14 through which the water passes. The core portion 13 is chamfered as at 15. It is obvious that by varying the height of the core portion 13 the clearance between the upper portion of the core 13 and the lower end of the orifice 5 as at 16 may be varied to increase or decrease the flow of water through the orifice.

The orifice 5 is arranged to be closed by a suitable valve consisting of a conical head 17 and a stem 18 which is arranged to slidably engage the sides of the aperture 19 in the core portion 13. The fit between the valve stem 18 and the opening in the core 13 is preferably loose so that the valve will readily move upwardly and downwardly when the water is respectively turned on or off. The lower end of the valve stem 18 is threaded as at 19 for the reception of a nut 20 which has an upper conical surface 21 and a lower inverted conical surface 22. When the water is turned on and the valve is raised to the position shown in the dotted lines (Fig. 2) the conical surface 21 of the nut 20 engages the conical seat 23 of the core 11 and maintains the valve stem 18 in a substantially vertical position. In this position the water passes through the openings 14 in the flange 12, thence, through the chamber 8, the serrated part 7 of the orifice 5 where it is divided into small streams. These small streams pass vertically upward until they strike the inverted conical face 24 of the valve head 17 whereupon they are directed outwardly and upwardly to uniformly water the ground surrounding the sprinkler head.

It is evident from the above description that the sliding fit between the valve and core in conjunction with the conical nut on the lower end of the valve stem and the complementary seat for the same in the core permit the amount of water passing through the outlet orifice to be varied and yet at the same time maintain the valve vertical so that the conical valve head will not become cocked

and direct the water outwardly and upwardly non-symmetrically or non-uniformly.

What I claim is:

1. A sprinkler head comprising in combination an orificed head arranged to be secured to a water feed line, a valve for the orifice, a core having an opening therein the lower portion of which is flared to provide a valve seat, the said core being positioned in the said head and having other openings therein whereby the water can flow therethrough and out of the orifice in the head, the said valve having a substantially inverted conical head portion and flared base arranged to fit in the said flared core seat during the flow of the water through the sprinkler head whereby the valve is maintained in substantially vertical position to effect a uniform distribution of the water.

2. In a sprinkler head of the type having a head with a central orifice arranged to be secured to the water feed line, the said orifice consisting of an inverted conical upper portion and a vertical serrated lower portion, the combination with a valve having an inverted conical head portion for effecting distribution of the water and a conical base portion and a stem connecting the conical head and base portion, of a core positioned within the said head and having a central aperture for permitting a loosely sliding fit with the valve stem, the said core having an inverted conical seat arranged to receive the conical base of the said valve during the flow of the water through the sprinkler head whereby the valve is maintained in substantially vertical position to effect a uniform distribution of the water.

3. A sprinkler head comprising in combination an orificed head arranged to be secured to a water feed line, the lower portion of said orifice being serrated, a core having a central aperture positioned within the said head and having an upwardly projecting frustro-conical portion positioned adjacent the serrated opening in the said head, the said core having an opening other than the central opening to permit the passage of water from the feed line through the said opening and hence through the orifice in the head, a valve slidably positioned within the central aperture of the said core and guided thereby for opening and closing the orifice in the said head, the frustro-conical projection on the said core serving to constrict the base of the serrated opening whereby the speed of the out-flowing water is increased to effect a better distribution.

In testimony whereof I affix my signature.

AUSTIN J. MILLER.