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**2,256,729**

MULTIPLE JET SPRINKLER

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*Fig. 1.*

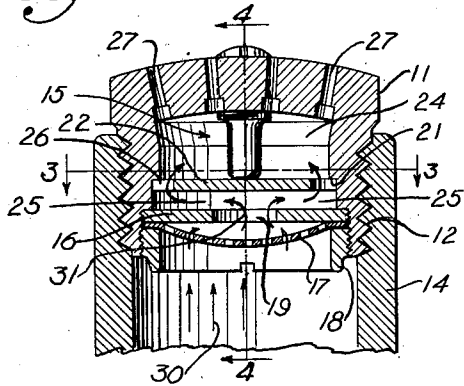


*Fig. 4.*

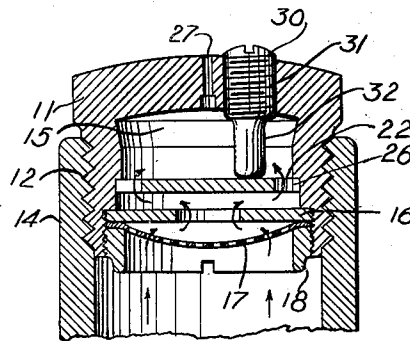


*Fig. 2.*

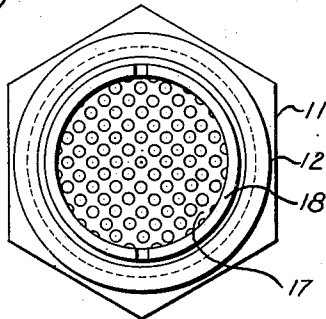


*Fig. 5.*

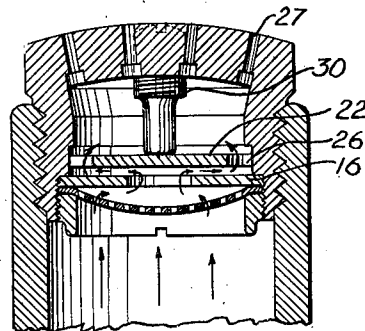
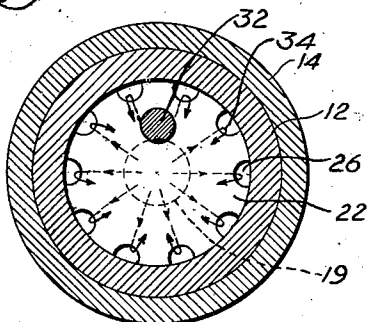


*Fig. 3.*



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## UNITED STATES PATENT OFFICE

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## MULTIPLE JET SPRINKLER

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Application October 18, 1937, Serial No. 169,686

4 Claims. (Cl. 299—150)

My invention relates to the art of irrigation and particularly to a sprinkler head having certain unique features, advantages, and structural improvements over the prior art.

My invention relates to the types of sprinklers adapted for throwing water over areas to be irrigated, and relates in particular to, but is not limited to, devices adapted to throw a plurality of individual streams.

It is an object of my invention to provide a sprinkler head in which an even distribution of water is obtained.

It is a further object of my invention to provide a sprinkler head in which a maximum distance of throw of the water may be obtained.

It is a still further object of my invention to provide a sprinkler head in which the amount of water flowing therethrough may be readily regulated from the exterior and without the necessity of removing the sprinkler head.

It is a still further object of my invention to provide a sprinkler head having a chamber in which the water is introduced in a substantially even and quiet distribution and in which the water is taken from the chamber with a minimum of agitation or turbulence.

Another object of my invention is to provide a sprinkler head in which the water before it enters the chamber is reduced in pressure and caused to flow laterally, and is directed into the chamber at a plurality of spaced points.

It is a still further object of my invention to provide a sprinkler head of this character having straining means which prevents clogging particles from entering the sprinkler, and in which the straining means may be readily removed and cleaned.

In the following detailed description of my invention I will illustrate a form of my invention which has proven to be highly successful in actual use. I recognize, however, that various alterations and modifications thereof may be made without departing from the spirit and scope of my invention. I therefore wish my invention to be broadly construed and the appended claims to be construed to cover all mechanical equivalents of my invention.

Referring to the drawing:

Fig. 1 is a vertical sectional view of a sprinkler head incorporating the features of my invention.

Fig. 2 is a bottom plan view of Fig. 1.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1.

Fig. 5 is a sectional view corresponding to Fig. 1 but showing the adjusting means in another position.

Referring to the drawing in detail, and particularly Fig. 1, the numeral 11 represents a body which, in accordance with standard practice, is externally threaded at 12 in order that the head may be screwed into a suitable supply means, such, for example, as the nipple 14. The body 11 provides a cavity 15 which is open at its lower end as shown. The cavity, however, is provided with a lower end wall or end plate 16 which, as shown, may be threadedly secured in place. If desired, the plate 16 need not have threads and may be held in place along with a strainer 17 by means of a nut 18. The plate 16 has a central inlet port 19 through which water may enter the cavity 15.

It will be noted that the lower part of the cavity 15 is enlarged so as to provide a shoulder 21. Positioned in the lower part of the cavity 15 below the shoulder 21 is a flow regulating means in the form of a flow regulating plate 22. This flow regulating plate 22 extends in a plane parallel to the end plate 16 and divides the cavity 15 into a chamber or quieting chamber 24 and an intermediate passage 25. Formed in the peripheral part of the plate 22 are peripheral openings or communicating openings 26 which connect the chamber 24 and the intermediate passage 25.

Formed in the upper part of the body 11 are a series of spray openings or spray nozzles 27 which constitute a spray forming means of my invention. It should be understood that my invention is not limited to this particular type of spray forming means nor to a plurality of spray forming means.

For the purpose of adjusting the position of the flow regulating plate 22 I provide a regulating means in the form of a screw 30 which is threadedly received in a threaded opening 31 formed in the upper part of the body 11, and which has a lower downwardly projecting portion 32 which engages an upper surface of the plate 22 as shown. By screwing the adjusting screw 30 downwardly the plate 22 may be moved into a suitable position, such, for example, as shown in Fig. 5, wherein the plate 22 has been moved downwardly toward the plate 16 a substantial distance.

In the use of my invention the plate 22 serves as a means for forming the cavity 15 into the chamber 24 and the intermediate passage 25. It furthermore provides a valve means, since

as this plate 22 is moved downwardly toward the plate 16, a valvular action is obtained, as will be readily obvious from an inspection of Fig. 5. As is shown in Figs. 1 and 3, the water flows upwardly through the nipple 14, as indicated by arrows 30, passes through the strainer 17 at which all clogging particles are arrested in movement, and then flows through the central inlet port 19. At this time the water may be reduced in pressure and it is caused to flow outwardly in all directions, as indicated by arrows 31, which arrows are dotted in Fig. 3. This water, it will be seen, flows laterally outward to the peripheral part of the intermediate passage 25. It then flows upwardly through the peripheral openings 26, as shown by arrows 32, and into the chamber 24. As is quite apparent from Fig. 3, the water enters the chamber 24 around the entire lower peripheral part thereof and may flow upward and inward, as indicated by the arrows 34 of Fig. 3. Since the area of cross-section of the openings 26 is relatively large, the water flows into the chamber 24 at a reduced velocity and in a very quiet condition. This method of introduction of the water, that is, introducing it under reduced velocity and at distributed points, produces a very quiescent condition in the chamber 24. The water flows upwardly through the chamber 24 and then passes outwardly through the spray openings 27 and, in this form of my invention, produces four streams of water which are directed outwardly over the area desired to be irrigated. I have found by using the principle incorporated in my invention that I am able to obtain an even distribution of water and a maximum distance of throw. I furthermore have found that the particles formed when the water is released are of such a size that wind interference is at a minimum.

As stated heretofore, I have shown and described but a single form of my invention. I do not wish to be limited to the details of construction disclosed therein, since various changes may be made. For example, the spray openings 27 may be changed in position, shape, or design. Instead of throwing a plurality of streams of cylindrical cross-section, the spray openings 27 may be changed in shape to throw or form fan-shaped streams. Likewise, the particular method of supporting the plates 16 and 22 may be changed, if desired, and instead of adjusting the plate 22 toward the plate 16 the plate 22 may be fixed, and the plate 16 may be moved relative to the plate 22. One feature of the invention is the use of the strainer means at the position illustrated so that the sprinkler will not be clogged. One advantage of threadedly securing the plate 16 in place is that when the strainer 17 and nut 18 are removed the plate 16 remains in place and thus holds the plate 22 in its cavity. When the water pressure is shut off the plate 22 may drop to the lower part of the cavity, but when the water is turned on the pressure immediately returns it into engagement with the adjusting screw 31.

Other features and advantages of my invention have been included in the details of description and need not be repeated.

I claim as my invention:

1. In a sprinkler head, the combination of: a body providing a cavity and spray forming means connected to said cavity; an end plate for said cavity providing an inlet port means; a flow regulating plate slidably disposed in said cavity and movable toward and from said end plate, said flow regulating plate having spaced peripheral projections in engagement with the side wall of said body whereby openings are provided between the peripheral portion of said regulating plate and said side wall; means in said cavity forming a stop to limit the distance said flow regulating plate may be moved away from said end plate; and an adjusting member operable from the exterior of said body for moving said flow regulating plate.

2. In a sprinkler head, the combination of: a body providing a cavity and spray forming means connected to said cavity, said body providing shoulder means in said cavity; an end plate for said cavity providing an inlet port means, said end plate being spaced from said shoulder means; a flow regulating plate in said cavity between said shoulder means and said end plate and movable toward and from said end plate, said flow regulating plate having spaced peripheral projections in engagement with the side wall of said body whereby openings are provided between the peripheral portion of said regulating plate and said side wall; and an adjusting member threaded through the wall of said body and being operable from the exterior of said body for moving said flow regulating plate.

3. In a sprinkler, the combination of: a body providing a cavity which is open at the lower end thereof and which is enlarged at its lower end to provide a shoulder, said body also providing spray forming means through which liquid may flow from said cavity; an end plate secured at the lower end of said cavity below said shoulder, said end plate having an inlet port; a flow regulating plate insertable into said cavity before said end plate is secured in place, said flow regulating plate being movably supported between said shoulder and said end plate and having opening means therein; and an adjusting screw operably supported by the upper end wall of said body for moving said flow regulating plate relative to said end plate.

4. In a sprinkler head of the class described, the combination of: wall members cooperating to form a hollow body having a front wall with spray forming means therein and a rear wall having inlet port means therein; a flow regulating plate slidable in said hollow body toward and away from said inlet port means; means of engagement between said hollow body and said plate forming a stop to limit the movement of said plate in a direction away from said inlet port means and to a position spaced from said front wall of said hollow body; and adjusting screw means carried by the forward portion of said hollow body and having a part exposed to the exterior for operation and a part extending into the interior of said hollow body for moving said flow regulating plate.

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