May 1, 1928. 1,668,271

C. R. FISK

SPRINKLER

Filed Aug. 9, 1926

Fig. 1

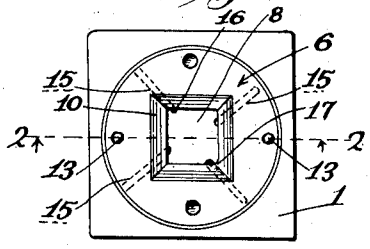


Fig. 2

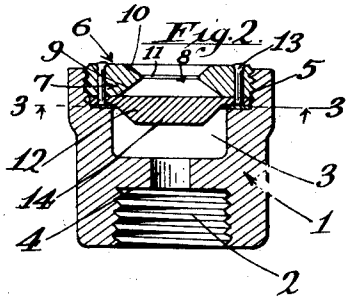


Fig. 3

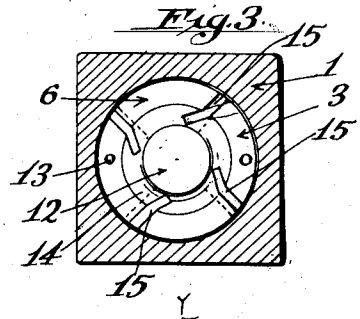


Fig. 4

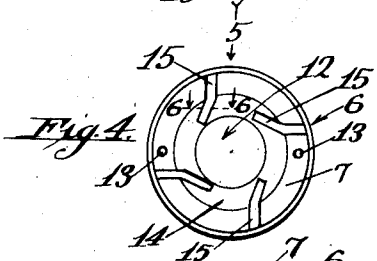


Fig. 5.

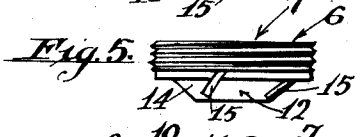
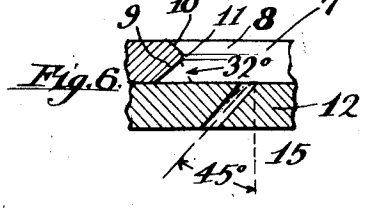


Fig. 6.



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Patented May 1, 1928. 1,668,271

UNITED STATES PATENT OFFICE.

CHARLES R. FISK, OF LOS ANGELES, CALIFORNIA.

SPRINKLER.

Application filed August 9, 1926. Serial No. 128,117.

My invention is a sprinkler for sprinkling water for lawns, gardens, orchards or other places where a sprinkler is desired, and may be utilized in overhead irrigation systems or the like.

An object of my invention is the construction of a sprinkler which will discharge the water in a desired direction and in the formation of a desired geometrical figure; an object being to discharge the water so that it may flow or drop to the ground in rectilinear lines.

In utilizing the ordinary type of sprinkler for lawns or gardens, such sprinklers throw the water on a path, sidewalk or roadway, this being disagreeable for passersby, as well as wasting the water. With my construction of sprinkler the proper sprinkler head may be chosen to throw the water to drop parallel to paths or sidewalks and to discharge water on a parkway parallel to a sidewalk and roadway.

Another feature of my invention is the pleasing character of the fountain or discharge of water from my sprinklers.

In constructing my sprinkler, I utilize a substantial base which may be threaded on to a water standpipe and secure the sprinkler head thereto, preferably by threading the sprinkler head into the base. The sprinkler heads of my construction are formed of an upper nozzle section and a lower water flow controlling section, the head having a hollow space between these sections and the water preferably being given a swirling motion in this hollow space.

My invention will be more readily understood from the following description and drawings, in which;

Figure 1 is a plan view of a type of sprinkler discharging water in the form of an inverted pyramid;

Fig. 2 is a section on the line 2—2 of Fig. 1, in the direction of the arrows;

Fig. 3 is a horizontal section on the line 3—3 of Fig. 2 in the direction of the arrows;

Fig. 4 is an underneath view of the nozzle head, showing the lower section and the slots therein;

Fig. 5 is a side elevation of the sprinkler head of Fig. 4, taken in the direction of the arrow 5;

Fig. 6 is a detail section on the line 6—6 of Fig. 4, in the direction of the arrows.

Reference is had to the construction of Figs. 1 to 6, illustrating the sprinkler discharging water in the form of an inverted pyramid. The base is designated by the numeral 1 having a screw threaded socket 2 for connection to the standpipes of a sprinkler system. A water chamber 3 connects with the socket 2 by a water passage 4. A recess 5 at the top of the base is internally screw threaded for the reception of the sprinkler head, this being designated generally by the numeral 6. The head is constructed of a nozzle plate 7 having screw threads to engage in the threaded portion of the socket 5 and having a rectangular, preferably square opening 8. On each side of this opening the walls on the lower side 9 and the upper side 10 are tapered, meeting in a slightly rounded edge 11.

The lower water controlling plate 12 is secured to the nozzle by rivets 13 or the like. This plate is preferably formed with a depending section 14 and has a series of slots 15 extending completely through the plate from the top to the bottom. These slots are formed at an inclination to the vertical and are preferably not radial but extend in a direction as illustrated in Fig. 3.

The slots are straight cuts with parallel sides and the bend illustrated in Figs. 3 and 4 is due to the depending section 14. The inner ends 16 of the slots are positioned to be substantially immediately below and slightly outside the corners 17 of the square opening 8. The sprinkler head with the attached lower plate may be screwed down tightly in the recess 5 and as illustrated in Fig. 2, this leaves the water chamber 3 which becomes filled with the water under pressure of the sprinkling system.

The water is then discharged upwardly through the slots 15, which being inclined, give the water an inclined path through the swirling chamber 8 in the sprinkler head. This action causes the water to flow outwardly over the edge 11 of the rectangular opening 8, forming substantially a body of water having square sides and an open center. The water then spreads outwardly after being carried to a considerable height, depending on the pressure and falls downwardly surrounding the sprinkler, striking the ground in lines substantially parallel to the edges 11 of the square opening. Thus the form of spray from this nozzle may be

regarded as in the shape of an inverted pyramid until it drops downwardly and then meets the ground in straight lines forming a square.

I find it advisable when using a water pressure of substantially 40 to 60 pounds per square inch, to have the lower surfaces 9 of the nozzles with an angle of substantially 32 degrees and the outer distributing surfaces 10 substantially 45 degrees with the level of the plate. The discharge slots in the lower water controlling plate are at substantially an inclination of 45 degrees to the surface of the plate. It is desirable to have the slots in the water control plate with their inner ends substantially below the corners of the square as illustrated in Fig. 1 and the slots extending outwardly parallel to the diagonal of the square.

In my sprinkler the water is thrown out in large drops and therefore does not form a fine spray which would be blown around in the wind, and in the sprinklers having the square and the round nozzle plates the water appears to follow the upper sloping distributing surface leading from the opening.

Where the specification however defines that the geometrical figure made by the water is an inverted pyramid, this is not intended to be absolute, as naturally the irregular fluctuations of the water give a more or less irregular distribution of the same.

It is manifest that sprinklers embodying my ideas may be considerably changed in general features or specific details. Such changes would be within the spirit of my invention as set forth in the description, drawings and claims.

Having described my invention, what I claim is:

1. A sprinkler comprising in combination a base having a recess in its upper part, there being shoulders at the bottom of the recess, a thick nozzle plate having a square opening, having a thin edge and inclined surfaces above and below the square opening, a water controlling plate connected to the nozzle plate, said plates fitting in the recess, the water controlling plate resting on the shoulders, said water controlling plate having slots therethrough inclined to the surface of said plate and extending outwardly from substantially the square opening of the nozzle plate and substantially adjacent the corners of said opening, there being a water chamber below the water controlling plate, and a passage to said chamber through the base.

2. A sprinkler comprising in combination a base having a recess in its upper part, a nozzle plate having a square opening, said opening being positioned between the top and bottom surfaces of the plate, there being outwardly inclined surfaces above and below the opening, a water controlling plate having a flat upper surface secured to the nozzle plate, said plates fitting in the recess, the water controlling plate having slots at an angle to the upper surface, said slots extending outwardly from substantially below the line of the square opening, there being a water chamber in the base below the water controlling plate and the passage to said chamber.

3. A sprinkler, as claimed in claim 2, the water controlling plate having a depending portion extending downwardly into the water chamber.

4. A sprinkler, as claimed in claim 2, the slots in the water controlling plate extending outwardly from substantially the corners of the square opening of the nozzle plate.

5. A sprinkler, as claimed in claim 2, the water controlling plate having a depending section extending downwardly into the water chamber, and the slots extending outwardly from a position adjacent the corners of the square opening of the nozzle plate and close to a diagonal line through such corners.

6. A sprinkler comprising in combination a base having a recess in its upper surface, a nozzle plate having a square opening, said opening being between the upper and lower surfaces, said opening being formed by a narrow edge with inclined upper and lower surfaces from said edge, the lower inclined surface having an angle of about thirty-two degrees relative to the lower surface of the plate, a water controlling plate having a flat upper surface secured to the nozzle plate, said plates being fitted in the recess, there being slots through the water controlling plate inclined at an angle of substantially forty-five degrees to the face of the said latter plate, the slots extending outwardly from a position substantially immediately below the square opening and near the corners of said opening, there being a water chamber in the base below the water controlling plate and the passage to said chamber.

7. A sprinkler having a sprinkler head with a nozzle plate substantially flat on the lower surface, said plate having an opening therethrough, there being inclined surfaces on the sides of the opening leading to the under side of the plate, a substantially flat water controlling plate secured to the nozzle plate, the said inclined surfaces forming a cavity in the lower portion of the nozzle plate, the water controlling plate having slots therethrough, inclined to the plane of the water controlling plate and extending outwardly from substantially the line of the opening of the nozzle plate.

8. A sprinkler head comprising in combination a base having a recess in the upper part, there being shoulders in the bottom of the recess, a thick flat nozzle plate having a square opening and inclined surfaces above and below the opening, a flat water control-

ling plate secured to the under side of the nozzle plate, the said lower inclined surfaces from the opening forming a cavity in the nozzle plate, the water controlling plate having slots inclined to the surface of said plate, said slots extending outwardly from substantially the corners of the nozzle plate, there being a water chamber below the controlling plate in the base, and a passage to said chamber through the base.

In testimony whereof I have signed my name to this specification.

CHARLES R. FISK.