Aug. 13, 1940. C. ELLIOTT 2,211,106

SPRINKLER HEAD

Filed July 25, 1939

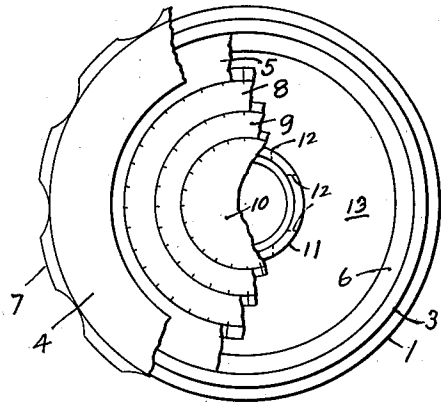


Fig. 1.

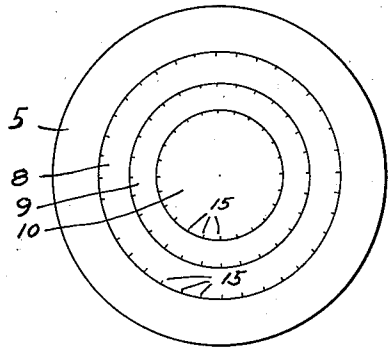


Fig. 2.

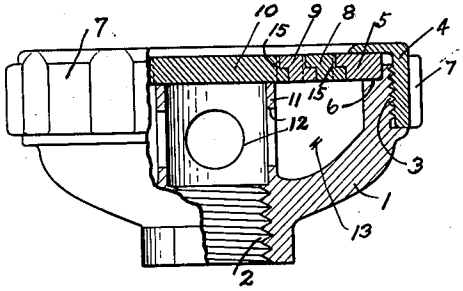


Fig. 3.

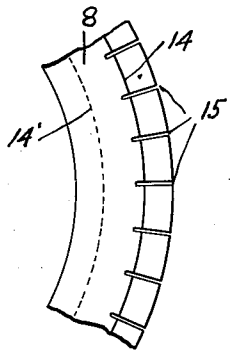


Fig. 4.

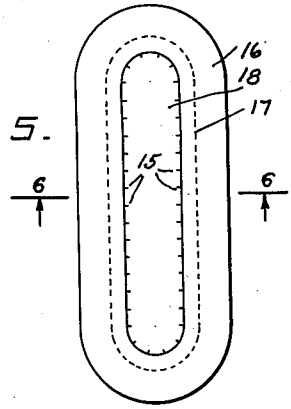


Fig. 5.

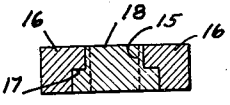


Fig. 6.

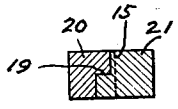


Fig. 8.

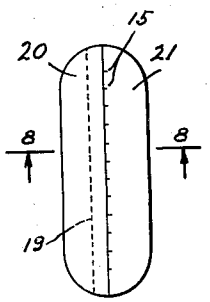


Fig. 7.

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2,211,106

SPRINKLER HEAD

Charles Elliot, Diablo, Calif.

Application July 25, 1939, Serial No. 286,399

3 Claims. (Cl. 299—141)

This invention relates to sprinkler heads for spraying water or other liquids, particularly as used for bath showers, and the invention has for its principal object an improved construction which greatly simplifies the work of producing the fine holes required for a needle spray and without the prior necessity of using a very thin perforated plate to become easily injured.

Another object of my improved construction is to provide means for easy cleaning of the fine spray holes, and further, a construction which is strong enough that it cannot burst if the holes should become clogged.

Also a construction lending itself readily to manufacture by moulding of thermoplastics.

In the drawing:

Figure 1 is a plan view of a rose spray or sprinkler head made in accordance with my invention and with portions successively broken away to reveal its construction.

Figure 2 is a plan view of the circular group of apertured elements removed from the head.

Figure 3 is a side elevation of the sprinkler head of Figure 1 with a portion broken away to show the internal arrangement of its parts.

Figure 4 is a greatly enlarged fragment of one of the sprinkler disk elements shown in plan.

Figure 5 is a plan view of a modified form of the invention.

Figure 6 is a cross section of Figure 5 as taken along the line 6—6 of Figure 5.

Figure 7 is a plan view of another modification of the invention.

Figure 8 is a cross section of Figure 7 as seen from the line 8—8 of Figure 7.

In further detail, my sprinkler head as shown in Figures 1 to 4 consists of a hollow bell-like body preferably of metal, having a threaded opening 2 at one end for screwing to a pipe, hose, or sprinkler water connection, and the large diameter of the bell is outwardly threaded as at 3 to receive an inwardly threaded clamping ring nut 4 which clamps the outer one, 5, of the sprinkler disk members in place upon an annular inner shoulder 6 formed around the inner edge of the bell.

This clamping ring nut 4 is preferably formed with finger gripping lugs 7 to facilitate operating by hand for removing the sprinkler disk members when desired.

The sprinkler disk members consist of a series of concentrically nested rings and a central disk, numbered from outside to inside 5, 8, 9, 10, the latter being the central disk and which bears at its under side against a supporting tube or spider 11 projecting upwardly from the inside of the bell and perforated laterally as at 12 to permit the water entering the opening 2 to freely enter bell space 13 under the sprinkler disk members. It is obvious that since spider tube 11 only forms a support against inward movment of disk 10 that it could be closed on its outer end if desired, or could be of any other form adapted to function as a support.

The sprinkler disk members are comparatively thick so as to be strong enough to resist the full outward water pressure, and each is formed with complementarily stepped edges 14, 14' so as to fit or nest nicely within the other in the manner indicated in the drawing so that they may easily be released from one another when pushed apart out of their plane of assemblage, yet when the outer one 5 is clamped at its outer margin against shoulder 6, the stepped margins 14, 14' hold all the rings and central disk 10 rigidly against outward movement from water pressure in the bell, and since spider 11 supports the central disk from below, it follows that none of the rings can be pushed inwardly into the bell.

These nesting sprinkler disk members may be turned up out of metal if desired, but I have found a more satisfactory material to be the various plastics now available, as the members may be quickly molded under pressure so that they will nest perfectly without other finish, and the fine marginal apertures will not corrode in use.

The spray apertures are produced by forming spaced radial slots 15 preferably around the convex margins of the members as indicated best in Figure 4 which is a greatly enlarged fragment of ring 8 shown in plan, and from which it will be seen that the radial slots 15 extend inward from the outer edge of the rings, and to a point just within step 14 so that when the rings are nested this slight extension constitutes a small open end of the slot at the outer face of the nested rings, while the entire slot is open at the inner face. In Figure 3 these slots are indicated by dotted lines 15. The slots may be of any desired number and as fine as required for the water pressure and spray effect wanted. They may be formed by sawing the edge of the rings, or by moulding in place if the rings are made of plastic.

The use of these slots in the separable sprinkler disk members as described permits of apertures much finer than could ever be drilled, yet affords easy cleaning out in a moment's time.

Instead of having the sprinkler head of round form as shown in Figures 1 to 4 it may be elon-

gated as shown in Figures 5 and 7 if the bell member and a suitable margin clamping member be similarly shaped to fit.

In Figures 5 and 6 the sprinkler disk consists of but two members, an outer flattened ring 16 formed with a recess or step 17 into which a marginally stepped inner plate member 18 is removably fitted. The inner member is slotted at 15 across its stepped margin to form the outlet apertures as described for Figure 4. It is obvious that while but two elongated sprinkler disk or plate members are shown in Figure 5, several may be used.

In Figures 7 and 8 but one stepped joint is shown at 19 between two elongated sprinkler plate members 20, 21 and with the latter slotted at 15 as described for the other forms of the device.

It should be noted, that while I show the spray slots 15 as extending radially of the disk or ring members in which they are formed, and with their inner edges at right angles to the plane of the sprinkler plate or disk, this is not a limitation, as these slots may be tipped at any angle with respect to the central axis of the sprinkler, either inclined toward or away from this axis, and/or tipped to either side out of parallelism with this axis, and besides this, the slots may be tipped or slanted in different ways on the same ring or successive rings, and may be of any width and depth or of mixed sizes. The word "slots" as used in my claims being intended to cover any desired arrangement of the same.

From the above description and modifications shown in the drawing it will be evident that various forms of the invention may be made by those skilled in the art without departing from the spirit of the invention, and as included in my appended claims.

I claim:

1. In a sprinkler head, an apertured plate for emission of the spray comprising a plurality of plate sections with steps formed in their edges fitting together in overlapping marginal contact, and spaced slots extending transversely through the steps in the margin of at least one of said sections of a depth to expose an open fluid channel through the overlapped marginal steps, and means detachably clamping the plate sections in position.

2. In a sprinkler head, a hollow body provided with a liquid admission port on one side and with the other side open, an apertured plate for emission of the spray covering the open side of the body, and a clamping ring engaging the outer margin of said plate detachably securing it to said body, said plate comprising concentric ring sections nested together with their edges formed with steps fitting together in overlapping relation and provided with spaced radial slots extending transversely through their marginal steps forming through liquid passages.

3. In a sprinkler head, a hollow body provided with a liquid admission port on one side and with the other side open, an apertured plate for emission of the spray covering the open side of the body, and a clamping ring engaging the outer margin of said plate detachably securing it to said body, said plate comprising concentric ring sections and a central disk all nested together and with their edges formed with steps fitting together in overlapping relation and provided with spaced radial slots extending transversely through their marginal steps forming through liquid passages, and a rigid perforated tubular member extending from within said hollow body to the under side of said disk for supporting the same against inward movement.

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