Oct. 4, 1932. A. R. LE MOON 1,881,409

SEGMENTAL SPRINKLER NOZZLE

Filed Feb. 24, 1930

Fig. 1.

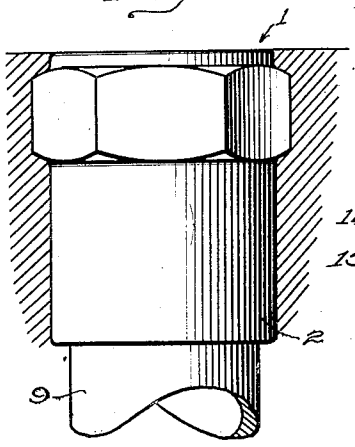


Fig. 2.

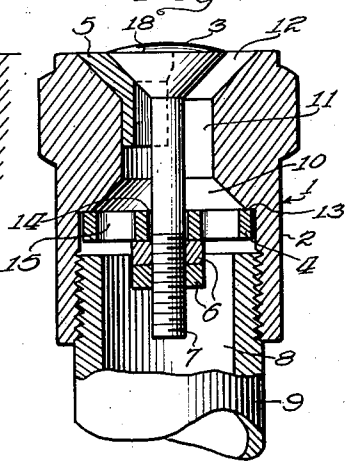


Fig. 3.

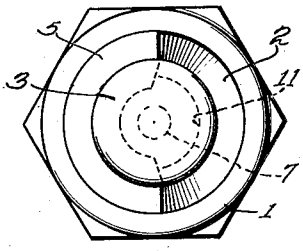


Fig. 10.

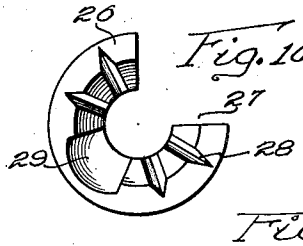


Fig. 4.

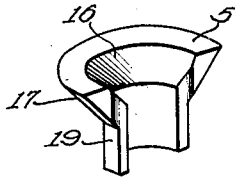


Fig. 5.

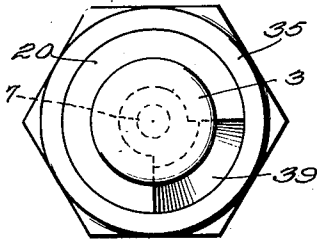


Fig. 6.

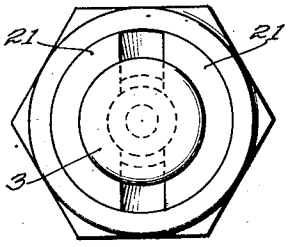


Fig. 8.

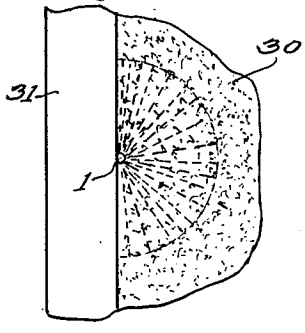


Fig. 7.

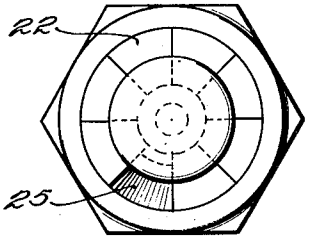
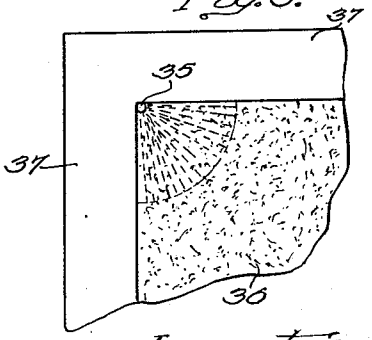


Fig. 9.



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UNITED STATES PATENT OFFICE

AXEL R. LEMOON, OF CHICAGO, ILLINOIS

SEGMENTAL SPRINKLER NOZZLE

Application filed February 24, 1930. Serial No. 430,969.

This invention relates to nozzles of the general character and purpose described in my co-pending application, Serial No. 221,733, filed September 24, 1927, and allowed October 6, 1929, except that the core is fixed rather than rotary; and it relates more especially to means for limiting the arcuate spraying range of such nozzles.

The main objects of the present invention are to provide means of improved and simplified form for limiting the effective spraying arc or angular range of nozzles designed for an arcuate radiant projection of streams or spray when the main axis of the nozzle is positioned vertically; to provide more economic and efficient means for effecting such limited distribution; to provide a nozzle adapted to accommodate the use of interchangeable range limiting members as well also as volume adjustment and gradient distribution members; to provide for adjustment to permit full circumferential range of spray when desired; to provide interchangeable members to regulate either range or volume or both according to local needs, and either gradient or otherwise.

An illustrative embodiment of this invention is shown by the drawing, in which:

Fig. 1 is a side view of a nozzle adapted for setting vertically in a lawn and substantially flush with the surface of the ground.

Fig. 2 is a vertical axial section through said nozzle, and the supply pipe to which it is connected.

Fig. 3 is a plan of a nozzle having a spraying range of substantially 180 degrees.

Fig. 4 is a perspective view of an interchangeable spray arc limiting adjuster.

Fig. 5 is a plan similar to Fig. 3, but showing an effective spraying arc of only about 90 degrees.

Fig. 6 is also a plan, showing two oppositely disposed effective spraying arcs of about 30 degrees each.

Fig. 7 is a nozzle plan having a single spraying arc of about 45 degrees.

Fig. 8 is a plan on a much reduced scale showing the effective spraying range of a nozzle such as shown in Fig. 3.

Fig. 9 is similar to Fig. 8 except that the spraying range is only about 90 degrees, as provided for by the nozzle of Fig. 5.

Fig. 10 shows a limited arc removable spray control member formed to produce large and small individual streams and also an arcuate sheet of spray of gradient peripherally variant volume.

Referring to Fig. 2, the nozzle 1 comprises mainly a substantially cylindrical frame 2, a headed core 3, an anchor member 4 to receive the inner end of said core, a segmental arcuate filler block 5, and a pair of nuts 6 to secure the threaded shank 7 of said core.

The block 1 has a wide cylindrical chamber 8 in its lower end to receive the threaded end of supply pipe 9. The inner end of this chamber converges conoidally at 10 to conduct the water into the comparatively narrow cylindrical neck part 11, from whence it flares conoidally at 12, where the water emerges from the nozzle. A shoulder 13 is provided at the inner end of the chamber 8 to receive the bearing face of the discoidal anchor 4, which is centrally apertured at 14 to receive the core shank 7. Said anchor is also perforated as indicated at 15, to provide free upward passage for the water.

The filler block 5 has arcuate conoidal inner and outer faces 16 and 17 to fit the corresponding adjacent faces of the frame 12, and the head 18 of core 3. Said block 5 also has a downward cylindrically arcuate shank part 19 fitting within the neck 11, with ample cylindrical passageway for water surrounding the axially positioned core stem 7.

The block 5 is shown separately in Fig. 4, and a plan thereof is shown in Fig. 3. Corresponding modified forms of this block are shown at 20, 21 and 22 on Figs. 5, 6 and 7, respectively. Figure 7 indicates how the filler block feature may be readily changed or adjusted by using a plurality of narrow segmental block elements, each of about 45 degrees peripheral extent, as indicated at 22, seven of these component blocks being shown, the complementary space at 25 being about 45 degrees, for the emission of water, or spray. More or less of these blocks 22 may be used and they may be variously spaced, as will be understood.

The filler block 26 of Fig. 10 is 270 degrees in extent. The full aperture 27 provides for a large stream and the grooves 28 for smaller streams, while the gradiently surfaced groove 29 provides for a wide band of spray of arcuately variant volume.

Referring to Fig. 8 the nozzle 1 is represented as being set in the edge of lawn 30, and closely adjacent to the sidewalk 31. The nozzle of Fig. 3 being here used, the distribution of spray is limited to substantially 180 degrees; and the nozzle being properly positioned, the spray is all distributed on the lawn, and none of it falls on the sidewalk.

Referring to Fig. 9, the nozzle 35 of Fig. 5 is here shown set in the corner of a lawn 36, adjacent to the sidewalk 37, which extends in two directions at an angle of 90 degrees. The filler block 20 having an arcuate extent of 270 degrees, prevents spray from falling upon the sidewalk 37, the spray range being limited to that of the complementary opening 39 of nozzle 35, so that the spray all falls on the lawn, as will be apparent.

Although but a few specific illustrations of this invention are herein shown and described, it is to be understood that numerous details may be altered or omitted without departing from the spirit of the invention as defined by the following claims.

I claim:

1. A nozzle comprising a frame having a conoidal discharge aperture, a correspondingly shaped core fixed therein and an arcuate filler interposed between said frame and core, said filler having variantly formed passageways extending lengthwise thereof.

2. A nozzle filler block of the character described, comprising an arcuate segmental body formed to block the nozzle passageway more or less, according to its arcuate extent, and being fluted to accommodate limited flow within its arcuate extent.

3. A nozzle filler block of fragmental arcuate design for restricting flow mainly to a certain complementary arcuate region, said block being fluted to accommodate correspondingly distributed stream flow in a region arcuately commensurate with said block.

Signed at Chicago this 20th day of February 1930.

AXEL R. LEMOON.