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D. E. LINDQUIST ET AL  
SPRINKLER HEAD

1,962,824

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FIG. 1.

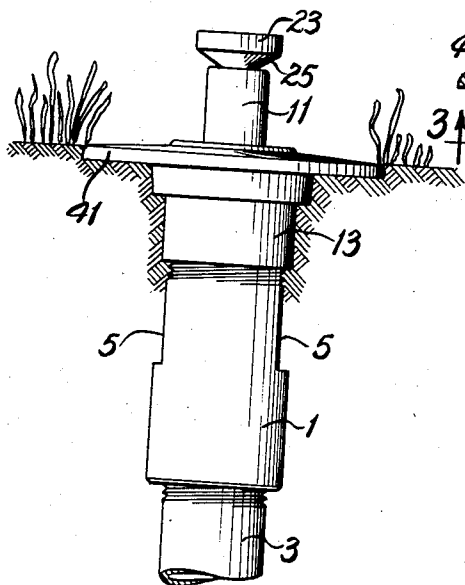


FIG. 2.

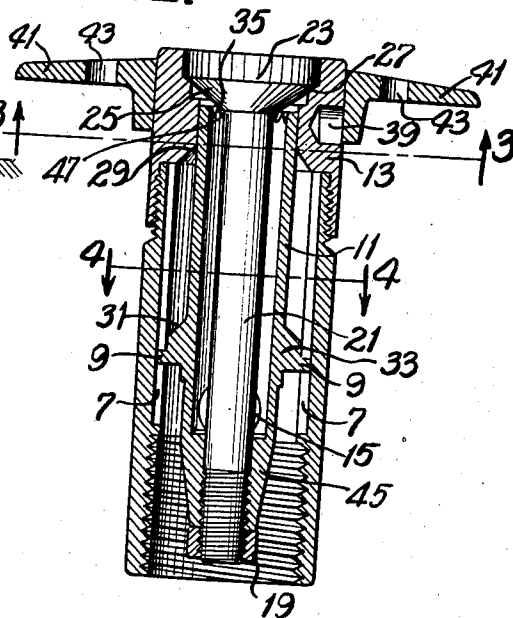


FIG. 4.

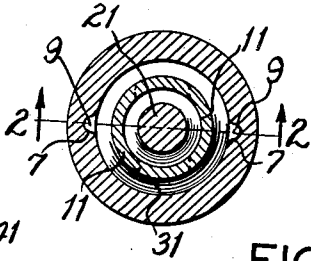


FIG. 3.

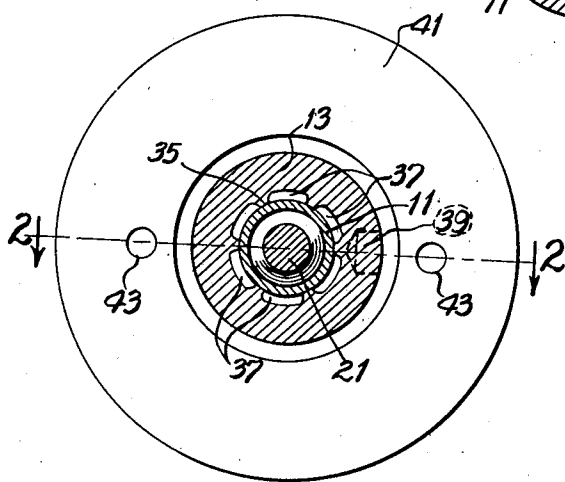
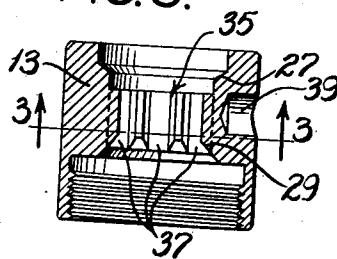


FIG. 5.



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# UNITED STATES PATENT OFFICE

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## SPRINKLER HEAD

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1 Claim. (Cl. 299—61)

This invention relates to sprinkler heads, and, with regard to certain more specific features, to disappearing lawn sprinkler heads.

Among the several objects of the invention may be noted the provision of an improved sprinkler head of the class described which minimizes or totally eliminates the tendency hitherto manifested for heads of this general type to stick or jam in extended spraying position, and which is adapted to prevent grass and the like from interfering with its operation. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structures hereinafter described, and the scope of the application of which will be indicated in the following claim.

In the accompanying drawing, in which is illustrated one of various possible embodiments of the invention,

Fig. 1 is a front elevation of the device shown in extended position;

Fig. 2 is a vertical, axial section of the device of Fig. 1, except that the device is shown in retracted position;

Fig. 3 is a horizontal section taken on line 3—3 of Fig. 2;

Fig. 4 is a horizontal section taken on line 4—4 of Fig. 2; and,

Fig. 5 is an axial section of a collar member. Similar reference characters indicate corresponding parts throughout the several views of the drawing.

Referring now more particularly to Fig. 1, there is illustrated at numeral 1 an outside body portion threaded at the bottom to be attached to a stand pipe such as 3 which pipe connects with a sprinkling system or the like. The body 1 is provided with flats 5 to which a wrench may be applied for attaching purposes.

Interiorly the body 1 is provided with vertical grooves 7 for slidably accommodating a pair of ears 9 on a slidable outlet nozzle 11. The outlet or water ejecting nozzle 11 slidably cooperates at its upper end with a collar 13 threaded to the body 1 so that it is adapted to be moved telescopically within the body 1. The slidable outlet 11 has inlet portions 15 at the lower end thereof for receiving water from the pipe 3. A stem 21 passes upwardly through the hollow center of the nozzle 11 and is formed at its top as a head or spreader 23. The stem 21 is threaded

into the bottom of the slider 11, a nut 19 functioning to lock the stem 21 in place. The head 23 is formed as an inverted cone 25.

The collar 13 is provided with an upper, interior conical seat 27, conforming generally to the conical portion 25 on the head 23. In its lower portion the collar 13 has a second inner conical seat 29, which is adapted to engage the reverse-conical surface 31 of an annular shoulder 33 on the nozzle 11. It will be noted that the heretofore mentioned ears 9 extend from this shoulder 33.

A central bore 35 of the collar 13 receives the nozzle 11 with sufficient clearance only to permit extending and retracting of said nozzle as described hereinafter, thus serving to hold said nozzle 11 in vertical position. A number of grooves 37 (six in the present embodiment, see Fig. 3) are broached or otherwise formed in the inner surface of bore 35. These grooves function as follows:

When the nozzle is in its extended, Fig. 1 position; and spraying water, there is manifestly a tendency for some water to wash back from the surrounding soil, carrying with it sand, dirt particles, and the like. With old forms of sprinklers, such sand and dirt particles wedged into the mechanism and frequently, when the water was turned off, caused the sprinkler to remain in extended position. This led to frequent breakage of both lawn mowers and sprinklers. However, the grooves 37, in combination with the other features of the invention, effectively reduce or completely eliminate this tendency of the sprinklers to remain in extended position. This is because (1) the area of contact between the nozzle and collar is greatly reduced, (2) channels are provided into which the drainage water, with its content, quickly flows, and (3) channels are provided for a non-harmful leakage or seepage of water from the body 1, thus establishing a counter-current to the incoming drainage water and thereby effectively stopping the influx of sand, dirt, etc.

A recess 39 is provided in the collar 13 for permitting the application of a spanner wrench to tighten the collar on the body 1.

With prior sprinklers, in their installation, grass frequently grows too long immediately around the sprinkler and interferes with the proper operation of the device. With the present invention a flange 41 is provided which lays on the earth for a short distance around the sprinkler (see Fig. 1) and effectively prevents grass obstruction. The flange 41, it will be understood,

is desirable but not absolutely necessary. If used, it is preferably shrunk or pressed on to the collar 13, in which event the wrench recess 39 is no longer available, but is replaced by a pair of recesses 43 in the flange 41, likewise adapted for the insertion of a spanner wrench.

The nozzle or projectable member 11 is illustrated in Fig. 2. It will be seen to comprise a tube, having a closed end 45 threaded to receive the stem or spray member 21. Above the end 45, but below the annular flange 33, are the water inlets 15. The upper end of the nozzle is desirably provided with spaced notches or serrations 47, for distributing water in a more even manner.

The stem 21, in its simplest form, is also shown in Fig. 2. In the Fig. 2 form said stem 21 has a plain conical spreader 25 at its upper end and is threaded into nozzle 11 at its lower end, and there locked in position by nut 19. It will be seen that the longitudinal adjustability occasioned by the threaded engagement of stem and nozzle permits regulation of the interval between serrated edge 47 and spreader 25, and thus permits regulation of the water spray.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in carrying out the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

We claim:

In a sprinkler head adapted for sub-surface installation, a cylindrical body, means substantially closing the end of said body which is, in operation, at the earth surface, said means having a central bore therein, and a movable water-ejecting nozzle centrally located in said body and sliding telescopingly in said bore, said bore having grooves therein extending along the region of the telescoping engagement and parallel to the sliding direction of said nozzle, said grooves providing passages for wash-back dirt, etc., whereby said dirt does not interfere with the telescoping movement of said nozzle, and cooperating means at the closed end of said body and on the said nozzle preventing any substantial ejection of water through said grooves.

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