Dec. 17, 1957 C. C. ENGLISH 2,816,799

LAWN SPRINKLER

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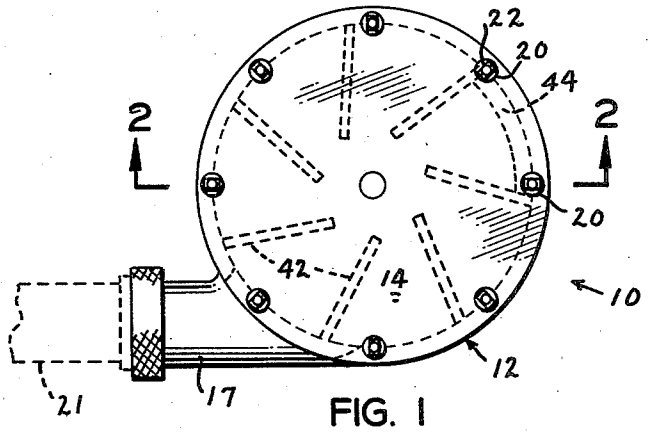


FIG. 1

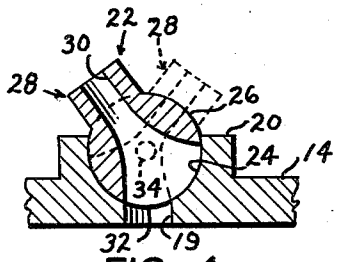


FIG. 4

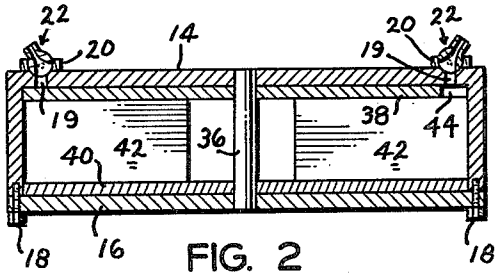


FIG. 2

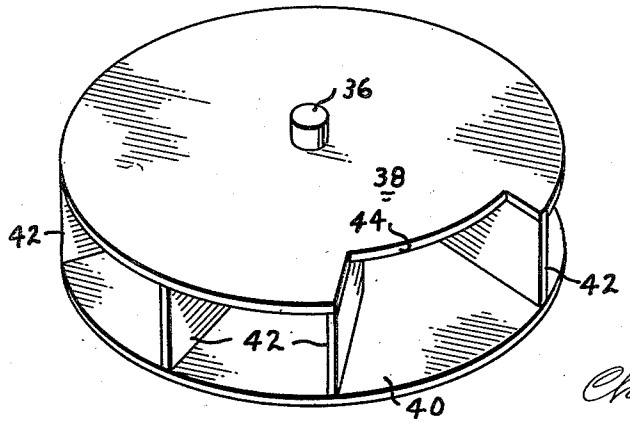


FIG. 3

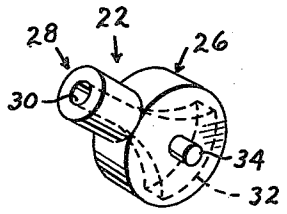


FIG. 5

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LAWN SPRINKLER

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4 Claims. (Cl. 299—73)

The present invention relates to lawn water sprinklers, and has reference more particularly to the portable type of sprinkler which is adapted to be attached to the end of a garden hose.

This application is a continuation in part of an application filed by me in the United States Patent Office on June 14, 1956, under Serial Number 591,399, for Lawn Sprinkler.

The prior art reveals a number of different types of water sprinklers, but most of these devices have the common fault of dispersing the full force of the water pressure simultaneously through a plurality of nozzles or openings. This results in limiting the sprinkled area to a relatively small portion of the lawn, and necessitates the frequent movement of the sprinkler to a new location.

The principal object of the present invention is to provide a water sprinkler which will spray a substantially larger area than conventional sprinklers of a comparable size.

An equally important object is to provide a water sprinkler which is relatively small and light in weight, and thus may be easily moved from one location to another.

Another object is to provide a sprinkler of this class which features a water dispersing means for directing the full force of the water pressure against a plurality of angularly adjustable spray nozzles in consecutive sequence.

An additional object is to provide a sprinkler of this character which has only one continuously moving part to become worn or get out of order.

A further object is to provide a sprinkler of this class which includes a plurality of restrictive spray nozzles carried by the top of the sprinkler, which may be manually adjusted for spraying a desired area.

The present invention anticipates a hollow cylindrical body having a lateral hose connection on a vertical axis and a pair of disks which are rigidly connected in spaced-apart relation by a plurality of radially spaced vanes. The upper surface of the body is provided with a plurality of circumferentially spaced-apart spray nozzles. Each of the nozzles has a pivotally mounted discharge tip for selectively directing the water angularly upward or outwardly from the body. As water enters the body, rotating the disks by means of the vanes, a recess in the periphery of the uppermost disk emits water through openings in the top in communication with the spray nozzles as the recess uncovers and covers the openings in rotative sequence.

Other objects will be apparent from the following description when taken in conjunction with the accompanying single sheet of drawings, wherein:

Figure 1 is a top view of the sprinkler;

Figure 2 is a vertical cross sectional view taken substantially along line 2—2 of Fig. 1;

Figure 3 is a perspective view of the rotating disks and vanes, per se;

Figure 4 is an enlarged fragmentary vertical cross sectional view of the sprinkler top and one of the nozzles; and,

Figure 5 is a perspective view of one nozzle discharge tip, per se.

Like characters of reference designate like parts in those figures of the drawings in which they occur.

In the drawings:

The reference numeral **10** indicates the device, as a whole, which comprises, in general configuration, a substantially cylindrical hollow body **12** having a closed upper end or top **14** and a lower end closed by a bottom plate **16** removably connected to the body by screws **18**. A tubular projection **17** is integrally carried by the wall of the body in communication with its hollow interior for connection with a garden hose **21**. The top **14** is provided with a plurality of openings or perforations **19** adjacent its periphery in circumferentially spaced-apart relation in communication with the interior of the body **12**.

As shown in Figs. 1 and 4, the top **14** integrally carries a circular base **20** surrounding each of the respective openings **19**. A discharge tip **22** is pivotally carried by each base **20** within a co-operating recess **24** formed in the base. The base members **20** may be formed separately from the top **14**, as illustrated in Fig. 2, and joined thereto in any suitable manner, if desired. Each of the discharge tips **22** comprises a relatively small cylindrical section **26** having a cylindrical ejection end tip or spout **28** integrally joined to the periphery of the section **26**. An axial bore or opening **30** is formed in the ejection tip **28** which extends diametrically through the cylindrical section **26**. The wall of the opening **30** is arcuately curved outwardly as it approaches the periphery of the cylindrical section **26**, on the side opposite the tip end **28**, to form a flared end opening **32**, as seen in Fig. 4 and as is shown by dotted lines in Fig. 5. Stub axles **34**, carried by the cylindrical section **26**, pivotally mount the discharge tip **22** within the base **20** on a horizontal axis perpendicular with relation to a diameter of the top **14**. Thus, each of the discharge tips may be adjustably pivoted manually to any position between an outwardly directed position, with reference to the center of the body **12**, as shown by solid lines Fig. 4, and an inwardly directed position as is illustrated by dotted lines. The flared end **32** of the tip opening **30** thus receives the full force of water pressure within the body **12** regardless of the positioning of the ejection tip **28**.

A shaft or axle **36** is axially journaled by the top and bottom of the body and rigidly carries an upper disk **38** and a lower disk **40** in parallel spaced-apart relation adjacent the inner surface of the top **14** and bottom **16**, respectively. The peripheries of the disks **38** and **40** are closely received by the wall of the body **12**. The disks are rigidly interconnected by a plurality of vertically disposed radially extending vanes **42**. The upper disk **38** is provided with a peripheral recess **44** formed between one set of the vanes **42** which permits water under pressure to enter the body and to be ejected outwardly between the said two vanes through the openings **19** and discharge tips or nozzles **22** in consecutive order as the disks **38** and **40** are rotated. The circumferential extent of the arc encompassed by the recess **44** is such that it substantially spans the distance between two of the openings **19** to prevent the disks and vanes stopping on "dead center." Transversely the recess **44** is sufficiently wide to uncover the lower end of each opening **19**, as is clearly shown in Fig. 2. The vanes **42** extend inwardly from the circumference of the disks in angular relation with respect to the radius of the disks

and end in spaced-apart relation from the axle or shaft **36** (Fig. 1) to allow water entering the sprinkler to be directed between all vanes, and outward through the rerecess **44** and discharge nozzles **22**, regardless of the position of the disks.

Obviously the lower disk **40** may be eliminated without altering the efficiency or operability of the sprinkler.

Operation

In operation the sprinkler **10** is connected to a garden hose **21** and the sprinkler placed in the desired location. Water under pressure enters the sprinkler from the hose and revolves the disks by means of the vanes **42**, thus spraying water outwardly through the nozzles **22** as the recess **44** is rotated. The screws **18** may be countersunk into the bottom in a conventional manner, if desired, thus permitting the sprinkler to be moved by dragging without entanglement with grass stems or roots.

Obviously the invention is susceptible to some change or alteration without defeating its practicability, and I therefore do not wish to be confined to the preferred embodiment shown in the drawings and described herein, further than I am limited by the scope of the appended claims.

I claim:

1. A lawn sprinkler, including: a hollow cylindrical body having parallel ends forming a top and a bottom, said body having an integral tubular projection in communication with its hollow interior for connection with a supply of water under pressure, said top having a plurality of circumferentially equally spaced-apart openings communicating with the interior of said body; a like plurality of adjustable discharge nozzles carried by said top in communication with the openings therethrough; an axle journaled by said body; a pair of disks rigidly connected to said axle in parallel spaced-apart relation adjacent the inner surface of said top and said bottom, respectively, the uppermost said disk having one recess in its periphery for covering and uncovering the lower end of the openings in said top as the disks are rotated for ejecting water therethrough, the length of said recess being substantially equal with relation to the spacing between two of the openings in said top; and a plurality of vanes rigidly connected radially to said disks for rotating the same by the movement of water through the sprinkler.

2. A lawn sprinkler, including: a hollow cylindrical body having a substantially flat horizontally disposed top; means connecting the hollow interior of said body with a supply of water under pressure, said top having a plurality of water dispersing openings in circumferentially spaced-apart relation adjacent its periphery in communication with the interior of said body; a like plurality of pivotally mounted discharge nozzles carried by said top in communication with the openings therethrough; a disk journaled by said body adjacent the lower surface of said top, said disk having a recess in its periphery for covering and uncovering the openings in said top for ejecting water therethrough as the disk is rotated, the length of said recess being substantially equal with relation to the spacing between any two of the openings in said top; and a plurality of vanes rigidly connected radially to said disk for rotating the same by the flow of water through said sprinkler.

3. A lawn sprinkler, including: a hollow cylindrical body having a substantially flat horizontally disposed top; means connecting the hollow interior of said body with a supply of water under pressure, said top having a plurality of water dispersing openings therethrough in circumferentially spaced-apart relation adjacent its periphery in communication with the interior of said body; a like plurality of adjustably positioned nozzle means carried by said top in communication with the openings therethrough; a disk journaled by said body on a vertical axis adjacent the lower surface of said top, said disk having a peripheral recess for covering and uncovering the lowermost end of the openings in said top as the disk is rotated for ejecting water therethrough; and a plurality of vanes rigidly connected to said disk in vertical edgewise radial relation for rotating said disk by the movement of water through said sprinkler.

4. Structure as specified in claim 3, in which each of said adjustable nozzle means includes, a circular base connected to said top, said base having a recess in its upper surface; a discharge tip pivotally mounted on a horizontal axis in the recess of said base for moving the ejection end of said tip toward and away from the axis of said disk, said discharge tip having a central opening therethrough in communication with the openings in said top.

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