March 14, 1933. J. H. BUTLER 1,901,225

LAWN SPRINKLER

Filed June 25, 1932

Fig.1.

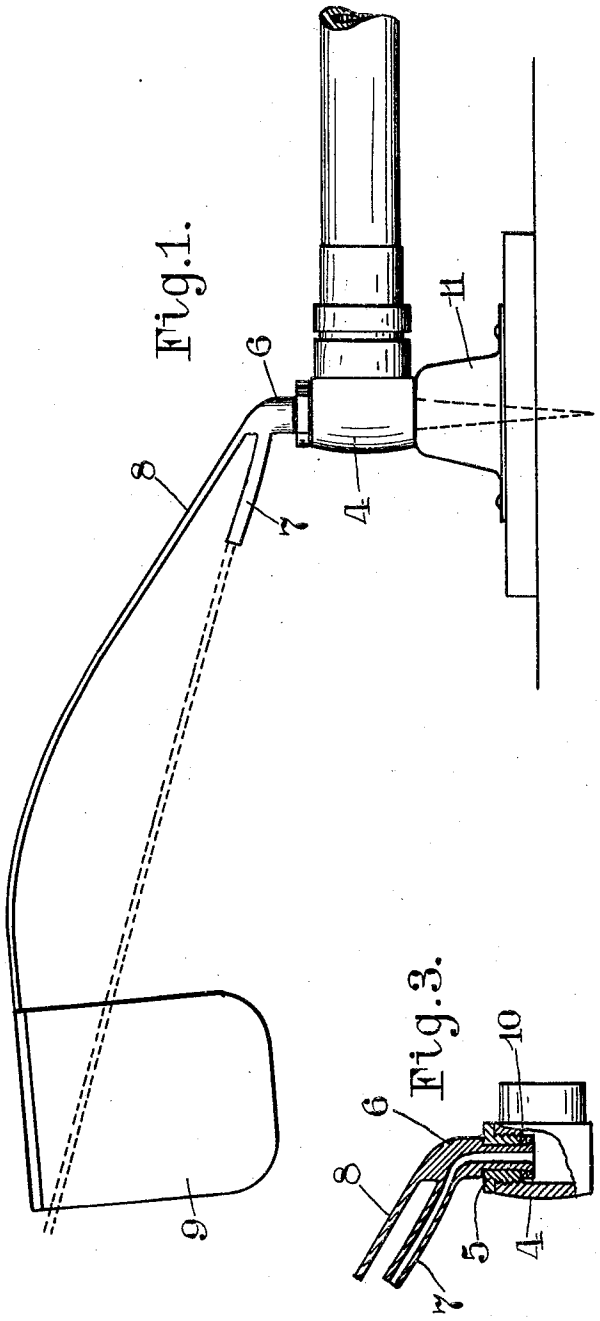


Fig.2.

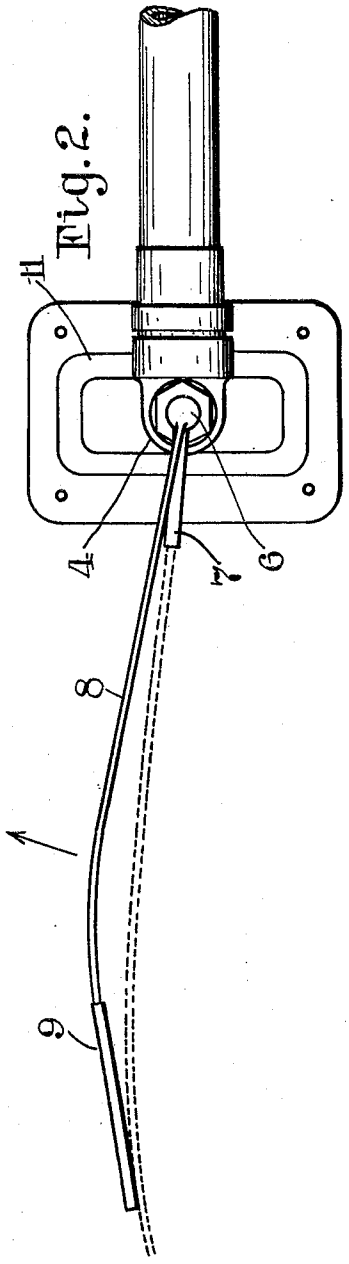


Fig.3.

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LAWN SPRINKLER

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This invention relates to rotary spraying or sprinkling devices especially such as are used for sprinkling water upon lawns or gardens.

One object of the invention is to provide such a device whereby as compared with ordinary sprinklers the area sprinkled is increased. Another object is to evenly distribute the water about the area sprinkled. A third object is to provide a device in which the angular displacement between the working edge of the vane and the axis of the nozzle may be changed. A fourth object is to provide a sprinkler that will automatically adjust the speed of rotation. A fifth object is to provide a device of this sort that may be readily adjusted to change the speed which the rotating head will automatically assume. Further objects will appear from the disclosure herein.

An example of the invention is illustrated in the accompanying drawing in which—

Figure 1 illustrates in side elevation the device according to my invention.

Fig. 2 is a top plan view of the same.

Fig. 3 is a detail sectional view of the water distributing casing.

In the views 4 designates the casing, it having at its side a threaded opening for removably coupling a hose to it. The upper end of the casing has an opening into which is threaded a bushing or bearing 5 in which bushing is rotatably mounted a hollow head 6 provided with a fluid passage extended as a nozzle. The head has attached to it an adjustable arm 8 that, in the present instance, is shown as of bendable wire and to the end of said arm is attached a vane 9. The arm 8 may be bent to present a face of the vane 9 to the axis of the stream of water so that angle of incidence of the stream on the vane shall be such as to cause the spreading and spraying of the water in the desired manner and directions.

In operation the impact of the stream of water on the vane causes the sprinkler head, its nozzle, and the arm and vane to rotate about the axis of the head thereby spreading the water around a wide circle. This condition is obtained because a portion only of the unbroken jet is used to drive the vane, as depicted in Fig. 2, such portion being automatically adjusted by the speed of the vane. The speed of the rotation and the area sprinkled can be varied by changing the point at which the jet strikes the vane when the latter is held stationary. The best sprinkling effect, in my judgment as a result of tests, is had when, in operation, the jet of water strikes the vane near its outer edge, and when the parts are turning with a speed of approximately sixty rotations or less per minute. It will be further observed that the bending of the jet relative to the center line of the nozzle is due to the fact that the particles of water travel in a path whose horizontal projection is a straight line while all points on the center line of the nozzle (including the point of contact of the vane) travel in a circle whose center is the axis of rotation. Or stated in another way, because the vane is rigid and the jet of water not rigid the vane in rotating has a tendency to leave the jet, but the rotative positions of the jet and vane are so maintained by the operation that only enough water strikes the vane to drive it at a speed corresponding to the setting of the vane.

The stem of the head 6 within the casing 4 is provided with a suitable washer 10 to bear against the lower end of the bushing 5 to prevent any considerable leakage of water around the stem through the top of the case, said washer being held up by the pressure of the water in the hose.

The device is shown as supported on a base 11 but any other suitable support can be provided for this purpose as for example a spike (see broken lines Fig. 1) extending from the lower end of the casing, said spike to be shoved into the ground.

The forms of the parts can be changed without departing from the gist of the invention as claimed.

What I claim is:

1. In a sprinkling device, the combination of a rotatably mounted water jet discharging nozzle and a vane placed at such a distance from the nozzle that in operation the amount of water that hits the vane is

automatically adjusted to the minimum necessary to drive the vane.

2. A rotary water sprinkler comprising a jet nozzle mounted to rotate on a vertical axis and arranged to discharge a jet of water at an angle relative to said axis, an arm fixedly mounted on said nozzle carrying a vane placed in the path of and at an angle to the jet issuing from said nozzle said vane located at a distance from the nozzle such that in normal operation the amount of water striking the vane will be automatically adjusted to the minimum amount necessary to turn the vane and nozzle.

3. A water sprinkling device including a nozzle mounted to rotate on an axis and discharge water at an angle to the axis of rotation of the nozzle, a vane carried with the nozzle, said nozzle constructed and located with respect to the vane to deliver, in normal operation, a portion only of an unbroken jet of water to the surface of the vane at its outer margin and at an acute angle to said margin.

4. In a sprinkler device, the combination of a rotatably mounted jet-discharging nozzle, an arm of bendable material rotated with the nozzle and carrying a vane, whereby said vane may be placed in such a position in relation to the nozzle that, in operation, the amount of water that strikes the vane is automatically adjusted to the minimum necessary to drive the vane.

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