W. C. TODD & J. W. POMEROY.

TRAVELING LAWN SPRINKLER.

APPLICATION FILED APR. 20, 1916.

1,215,081.

Patented Feb. 6, 1917.

Fig. 1.

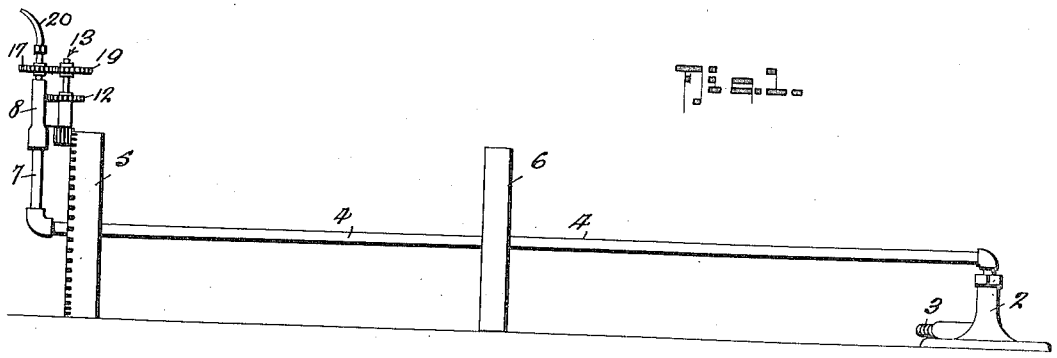


Fig. 2.

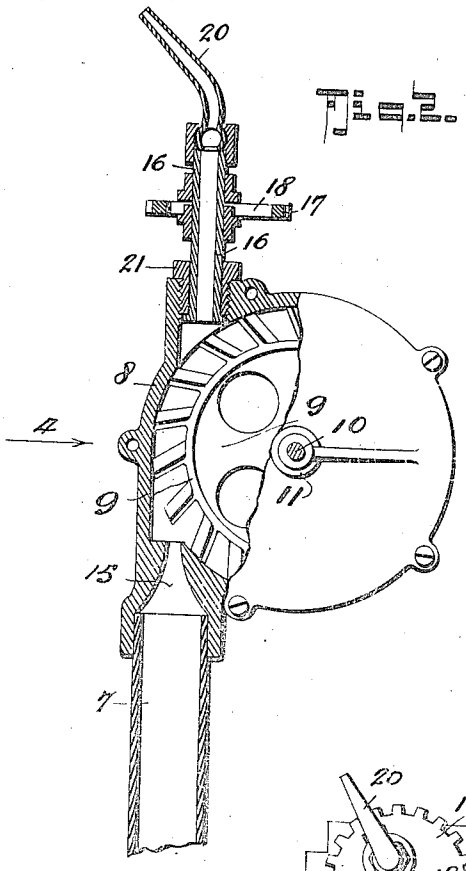


Fig. 4.

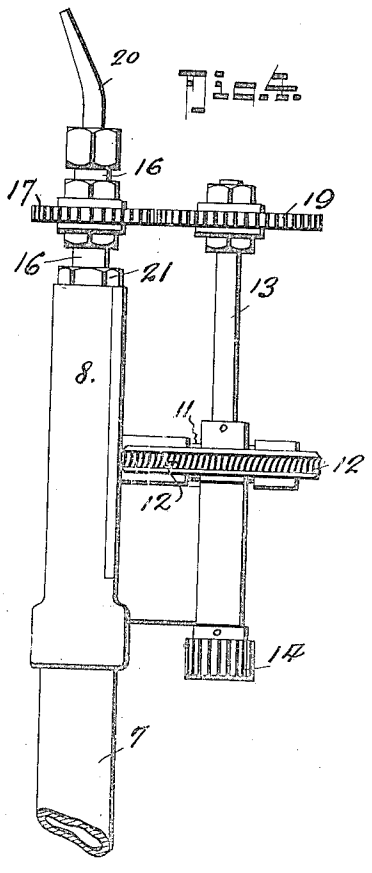
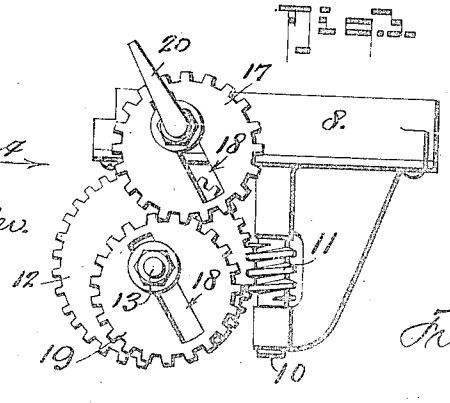


Fig. 3.



WITNESS

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TRAVELING LAWN-SPRINKLER.

1,215,081. Specification of Letters Patent. Patented Feb. 6, 1917.

Application filed April 20, 1916. Serial No. 92,473.

To all whom it may concern:

Be it known that we, WILLIAM C. TODD and JAMES W. POMEROY, citizens of the Dominion of Canada, residing at Victoria, in the Province of British Columbia, Canada, have invented certain new and useful Improvements in Traveling Lawn-Sprinklers, of which the following is a specification.

This invention relates to a rotatable sprinkler of that class wherein the water is delivered in a finely divided state from the free end of a pipe which travels in a circular path about a central standard to which a water service is connected.

The device is an improvement on that on which Patent No. 1,108,528 was granted to us on the 25th August, 1914, and the improvement is directed to the use of a rotatable inclined spraying nozzle instead of a rotatable reaction sprinkler such as is set forth in the aforementioned patent, rotation of the inclined nozzle about its axis and rotation of the wheel which supports the free end of the radial pipe and carries it in a circle around the central standard, being effected by a small impact turbine through which the water passes to the spraying nozzle.

It is found that the nozzle will deliver the spray of water to a greater distance than it can be thrown by the use of a rotatable sprinkler and this rotatable spraying nozzle mounted on the end of the radial pipe gives a considerably increased radius of action.

The present invention also comprises several incidental features to which attention is drawn in the following specification, reference being made to the drawings by which it is accompanied, in which:

Figure 1 is a side elevation of the sprinkler complete showing the spraying device as mounted on the free end of the central standard about which it circles.

Fig. 2 is a part section through the axis of the water delivery to the turbine and therefrom to the spraying nozzle.

Fig. 3 is a plan of the same, and

Fig. 4, a side elevation looking in the direction of the arrows 4.

In these drawings 2 represents the tubular central standard which is connected at 3 to a water service which may either be a permanent connection to an underground water distribution pipe or may be made by means of an ordinary garden hose pipe. About this central standard 2 the horizontally disposed pipe 4 of any convenient length is radially movable, and the free end of it is supported on a wheel 5 preferably mounted on the pipe itself between collars. If the pipe 4 is of any considerable length the same may be trussed to impart the required rigidity, or it may have an intermediate support wheel 6 to sustain its weight.

The free end of the radial pipe 4 is upturned as at 7 outside the support wheel 5, and secured on the upper end of the upturned portion 7 is a light metal casing 8 within which is rotatably mounted a turbine wheel 9. The shaft 10 of this turbine has a worm 11 secured on it outside the casing, which worm meshes in the teeth of a worm wheel 12 secured on a shaft 13 rotatable in a bearing secured or integral with the casing 8.

On the lower end of the shaft 13 is secured a pinion 14, the teeth of which mesh with teeth formed in the edge of the rim of the support wheel 5.

The direction of the upturned portion 7 of the radial pipe is approximately tangential to the periphery of the turbine and the water delivers to the vanes or buckets of the turbine through a conical delivery jet 15. The water delivery from the turbine is parallel to the axis of the jet 15 and in a bushing 21 secured in it is rotatably mounted a delivery pipe 16 which is gland-packed or has other provision to avoid leakage.

On this rotatable pipe 16 a small gear wheel 17 is secured, the gear wheel having a diametrically elongated aperture 18 in which it is adjustably secured on the pipe 16 between nuts threaded thereon, so that any desired measure of eccentricity within the scope of the elongation 18 may be imparted to the periphery of the gear. The teeth of this gear wheel 17 mesh with those of a corresponding wheel 19 secured in a similar manner upon the upper end of the worm-wheel shaft 13.

On the upper end of the delivery pipe 16 is secured by a ball and socket connection a bent nozzle pipe 20, so that the angle of delivery of the water from the nozzle may be varied to suit the requirements of the pressure available.

With this mechanism the water flowing from the central standard 2 along the radial

pipe 4, 7 and through the turbine 9, not only directly rotates the nozzle 20 about the axis on which it is mounted but through the worm 11 and worm wheel 12 slowly drives the support wheel 5 and thereby carries the rotating sprinkler around a circular path about the standard 2.

If rotation of the water distributing nozzle 20 is uniform it will obviously bestow the same amount of water within the circle of its path, as it does outside the same, although the area to be sprinkled outside is much greater than that within. It is to correct this that the gears 17, 19 are eccentrically mounted on their axes, so that the rotational velocity of the nozzle is reduced during the outer part of its movement and increased during the inner part.

Having now particularly described our invention, we hereby declare that what we claim as new and desire to be protected in by Letters Patent, is:

1. In a traveling lawn sprinkler, the combination with a central standard to which a water service is connected and a radial pipe one end of which is mounted on the central standard to travel around it in a substantially horizontal plane, an upwardly extending spraying nozzle rotatably mounted in the free end of said radial pipe directed from the vertical, a turbine through which the water passes to the rotatable nozzle, means operative by the turbine for moving the radial pipe around the central standard, and means for rotating the spraying nozzle around a vertical axis.

2. In a traveling lawn sprinkler, the combination with a central standard to which a water service is connected and a radial pipe one end of which is mounted on the central standard to travel around it in a substantially horizontal plane, a wheel supporting the free end of the radial pipe, an upwardly extending spraying nozzle rotatably mounted in the free end of said radial pipe and directed from the vertical, a turbine through which the water passes to the rotatable nozzle, means operative by the turbine for rotating the supporting wheel, and for rotating the spraying nozzle around a vertical axis.

3. In a traveling lawn sprinkler, the combination with a central standard to which a water service is connected, a pipe mounted on the standard to radially travel around it the outer end of said pipe being upturned, a wheel rotatably mounted on the free end of said pipe adjacent the upturned end, a turbine into the casing of which the upturned end of the radial pipe is connected, a pipe rotatably mounted in the delivery from the turbine, an inclined spraying nozzle secured in the outer end of the delivery pipe by an angularly adjustable connection, means for rotating the turbine delivery pipe from the turbine, and means for rotating the supporting wheel from the same.

4. In a traveling lawn sprinkler, the combination with a central standard, a horizontally disposed pipe mounted on said standard and susceptible of radial movement around the same, means for supplying water service to the pipe, said pipe having an upturned end, a spraying nozzle mounted on said upturned end, means for moving the radial pipe around the central standard and means coöperative with said moving means for rotating the spraying nozzle at a variable velocity.

5. A traveling sprinkler, comprising in combination a central standard to which a water service is connected, a horizontally disposed pipe mounted at one end on the standard to travel radially around it and at the other end upturned, a rotatable delivery nozzle connected with said upturned end, a supporting wheel rotatably mounted on the free end of the pipe adjacent the upturned end, a turbine interposed between the upturned end and the delivery nozzle, means operative by the turbine for rotating the supporting wheel at a substantially uniform velocity and for rotating the delivery nozzle at a variable velocity.

6. In a traveling sprinkler, the combination with a pipe, means for mounting said pipe to travel in a circle, a nozzle rotatably mounted at the end of said pipe directed from the vertical, and nozzle rotating devices including projections for rotating the nozzle while it is directed outside of the circle in which it travels at a less velocity than when it is directed inside of that circle.

7. A traveling lawn sprinkler comprising in combination a central standard to which the source of water supply is adapted to be connected, a horizontally disposed pipe, one end of which is pivoted on said standard and the other end of which is upturned, a supporting wheel rotatably mounted adjacent said upturned end on said pipe, an impact turbine including a casing and a turbine wheel, said turbine casing being mounted on the upturned end of said pipe, said turbine including a shaft, a worm on said shaft, a vertically disposed shaft mounted in bearings supported by said turbine casing, a worm wheel on said vertically disposed shaft with which said worm meshes, a pinion secured to the lower end of the work wheel shaft, said supporting wheel having driving teeth to mesh with said pinion, said turbine casing having a water outlet, a short length of pipe rotatably mounted on said turbine casing in register with said outlet, an inclined nozzle, a pawl and socket connection between said nozzle and the end of said short length of pipe, a gear wheel secured on said short length of pipe, a gear wheel on the upper end of said worm

wheel shaft to mesh with the teeth of said last mentioned gear wheel, substantially as shown and described.

8. In a traveling lawn sprinkler, the combination with the horizontally disposed pipe, a central standard to which the water service is adapted to be connected, said pipe being mounted in said standard for radial movement around the same, the outer end of said pipe being upwardly turned, a supporting wheel rotatable on said pipe, a turbine including a casing, and a turbine wheel, the casing having an inlet and an outlet, said casing being mounted on the upturned end of said pipe whereby said pipe will deliver into the inlet of said casing, said turbine including a spindle, a worm secured on said spindle, a worm wheel whose teeth mesh with that of said worm, a worm wheel shaft on which said worm wheel is secured, bearings projecting from the turbine casing for said worm wheel shaft, a pinion on the lower end of said worm wheel shaft, said supporting wheel having rim teeth to mesh with said pinion, a bushing secured to the turbine casing to register with the delivery outlet, a spraying nozzle rotatably mounted in said bushing, means for rotating said nozzle at a variable velocity from the worm wheel shaft, said means comprising intermeshing gear wheels mounted eccentrically on the worm wheel shaft and said nozzle respectively.

In testimony whereof we affix our signatures.

WILLIAM C. TODD.
JAMES W. POMEROY.