

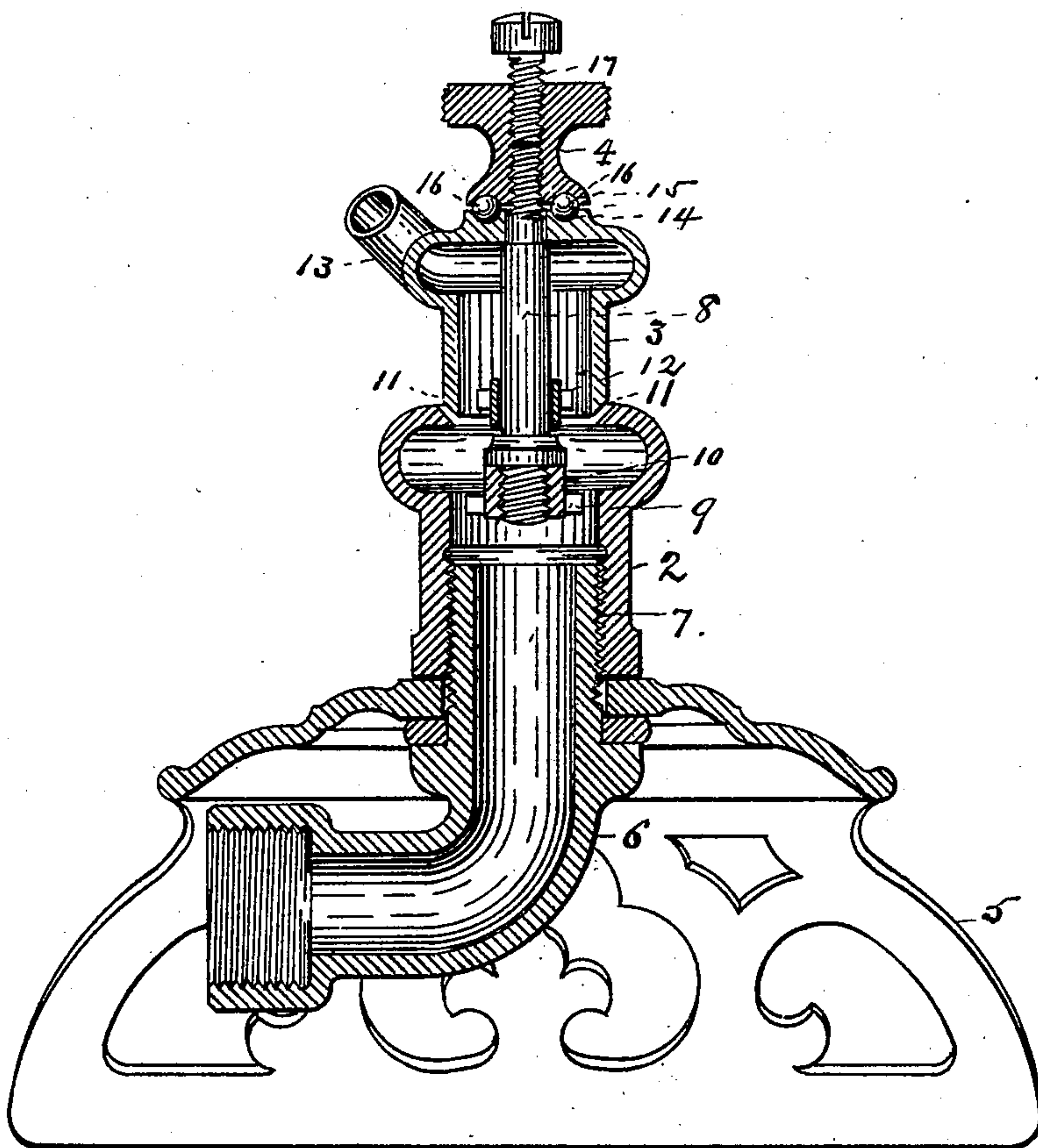
No. 631,944.

Patented Aug. 29, 1899.

J. M. STOUDE.
LAWN SPRINKLER.

(Application filed Jan. 3, 1899.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

JACOB M. STOUDER, OF FORT WAYNE, INDIANA.

LAWN-SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 631,944, dated August 29, 1899.

Application filed January 3, 1899. Serial No. 700,910. (No model.)

To all whom it may concern:

Be it known that I, JACOB M. STOUDER, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented new and useful Improvements in Lawn-Sprinklers, of which the following is a specification.

My invention relates to improvements in lawn-sprinklers which are operated by a stream of water passing through them, whereby the distribution of the water is effected; and the objects of my improvements are, first, to provide an improved lawn-sprinkler which shall be easier of operation and more durable and effective in discharging water in which foreign matters are suspended, and, secondly, to provide a lawn-sprinkler which shall discharge the water in thin adjustable sheets, combined with a tangential stream cutting and diverting it at all points of a circle as the rotating discharger is revolved. I attain these objects by the mechanism illustrated in the accompanying drawing, in which the figure is a vertical section of the machine.

Similar numerals of reference refer to similar parts throughout the view.

My device is constructed in three essential parts—a base-chamber 2, a rotating discharger 3, and an adjustable cap 4. In the drawing I have shown in addition to these parts a stand 5 and a connecting supply-tube 6 for convenience of support and connection to a water-pipe. Any other suitable support and connection may be used, if desired.

The base-chamber 2, preferably cylindrical and open at both ends, is provided at its lower end with a screw-thread 7 for attachment to the connecting supply-tube 6. It is also provided with means for the attachment of a central shaft 8, consisting, preferably, of a yoke 9, provided with a boss 10, through which a threaded hole is tapped to receive the threaded end of the shaft 8, thereby giving the shaft a firm and rigid support. Any other means of attachment may be substituted, the essential construction being that a shaft shall be rigidly secured to said base-chamber centrally and so secured as not to impede the passage of the water through it. The upper end of the base-chamber 2 is provided with a large orifice having a chamfered edge, which, in combination with the chamfered edge of

the lower end of the rotating discharger 3, forms an annular outlet 11.

The rotating discharger 3 is mounted on the shaft 8 with suitable bearings, so as to rotate in place freely, preferably a bearing in a yoke 12 at the bottom and in an orifice in the top of the discharger. It is preferably cylindrical. The lower end is provided with a large orifice corresponding to the orifice on top of the base-chamber 2 and chamfered, so that the sides of the two chamfers, when the parts are separated, form an inclined annular outlet 11 with parallel sides, through which the water passes in a circular sheet, its thickness being regulated by the distance between the base and the rotary discharger and its angle of discharge regulated by the angle of the chamfers of the outlet 11. This discharger 3 is also provided at its top with a tangential discharge-opening, preferably the tube 13. (Shown in the drawing.) It is also provided on its top with a ball-raceway 14.

The adjustable cap 4 screws on the top of the shaft 8 to secure the parts in proper relation to each other. Its lower end is provided with a ball-raceway 15, and when in place balls 16 are placed in the two raceways 14 and 15, so as to form a ball-bearing between the cap 4 and the rotating discharger 3. A set-screw 17, passing centrally through the top part of the cap 4, impinges at its threaded end against the top of the shaft 8 within the cap, whereby the distance between the parts 2 and 4 may be adjusted, and consequently the distance between the sides of the annular outlet 11, which controls the thickness of the circular sheet of water, as described *supra*. This is my preferable construction of means to hold the rotating discharger 3 and the base-chamber 2 in desired position relative to each other.

The mode of operation is as follows: The connection being made to a water-pipe, as the water is turned on it passes up through the base-chamber 2 and into the rotating discharger 3. The volume of water being larger than the area of the tube 13 it raises the discharger 3 up against the balls 16, opening the annular outlet 11, through which a circular sheet of water is continually discharged. The discharge through the tube 13 tangentially rotates the discharger 3 on well-

known principles, and the stream of water issuing through the tube 13 is thereby directed to all points of a circle as it rotates and strikes the circular sheet of water issuing through the outlet 11, whereby a sprinkling and spraying distribution of the entire discharge is produced and the area of the distribution is increased.

It will be seen by the construction described that I have combined a circular sheet of water with a tangential discharge-stream cutting it at all points of a circle and diverting and increasing the effectiveness of the throw of the water. The thickness of the sheet of water discharged through the annular outlet 11 is regulated by the cap 4. The farther down the cap is screwed upon the top of the shaft 8 the closer the parts are brought together and therefore the thinner the sheets of water. This distance is thus adjustable and is secured by screwing the cap 4 upon the shaft 8 the required distance, and then by screwing the set-screw 17 so that it impinges against the upper end of the shaft 8 the desired distance is thereby fixedly secured, so that the adjustment is not easily disarranged. When the rotating discharger 3 is raised up by the force of the water entering it, as described, it is rotated by the tangential discharger, the frictional parts having ball-bearings. The rotation of the discharger 3 around the shaft 8 has very little, if any, friction on the shaft. By this construction the rotating parts of the device have the least possible friction, and therefore it is more easily operated and with greater velocity than attainable in any other rotating spray device, and there is less wear upon the parts. It will be seen by the construction that all sand and gritty materials held in suspension by the water are freely discharged without coming in contact with any of the frictional parts, and the life of the device is thereby greatly extended and an increased efficiency of operation secured.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a lawn-sprinkler the combination of a suitable support with a base-chamber provided with a shaft centrally and rigidly attached, its upper orifice provided with a chamfered edge and its lower end with means

of attachment to a water-pipe a rotating discharge revolubly mounted on said shaft and provided at its upper end with a tangential discharge opening or tube, and also with a chamfered edge at its lower end adapted to form with the chamfered edge of said base-chamber an annular opening: an adjustable cap adapted to be screwed on the threaded end of the said shaft and provided with a set-screw adapted to limit the passage of the said shaft through it: and balls placed in the raceway formed in the top of the said rotary discharger and in bottom of the said adjustable cap: substantially as described.

2. In a lawn-sprinkler a base-chamber provided with a shaft centrally and rigidly attached, and its upper orifice provided with a chamfered edge: a rotating discharger mounted revolubly on said shaft and its lower end provided with a chamfered edge adapted to form with the chamfered edge of said base-chamber an annular opening and also provided with a tangential discharge-opening and means to hold the parts in an adjustable relation to each other.

3. In a lawn-sprinkler, a base-chamber provided with a shaft centrally and rigidly attached, and its upper orifice provided with a chamfered edge: a rotary discharger mounted revolubly on said shaft and provided with a chamfered edge adapted in combination with the chamfered edge of said base-chamber to form an annular opening and also provided with a tangential discharge-opening: a cap secured to the top of the said shaft adjustably: and balls placed in raceways formed in the top of the rotating discharger and in the bottom of said cap adapted to form ball-bearings.

4. In a lawn-sprinkler of the class named, the combination of a rotating discharger having a large inlet, mounted revolubly on a shaft with a limited vertical motion thereon and adapted to be raised thereon by the force of the water when in use; a cap for said shaft adapted to adjustably limit the vertical movement of said discharger; and balls placed in raceways in said cap and discharger to form ball-bearings between them.

JACOB M. STOUDER.

In presence of—

H. G. PFEIFFER,
H. C. HARTMAN.