

J. C. WILSON.
STREET SPRINKLER.
APPLICATION FILED JULY 27, 1903.

2 SHEETS—SHEET 1.

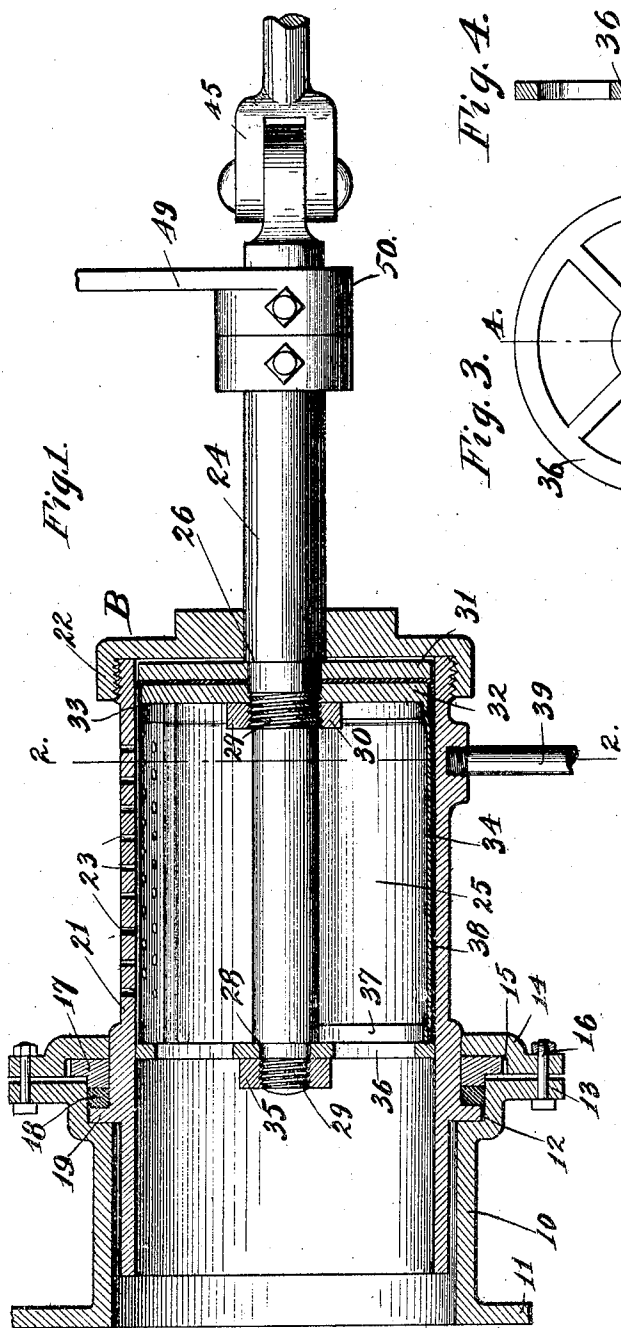


Fig. 4.

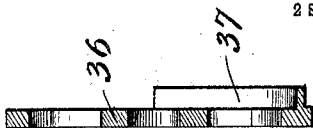


Fig. 3. A.

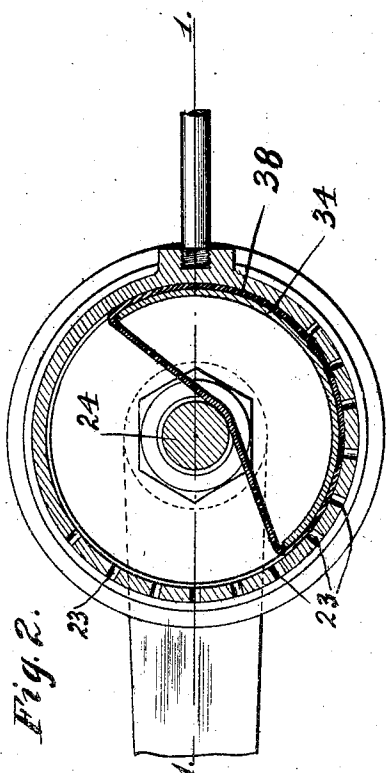
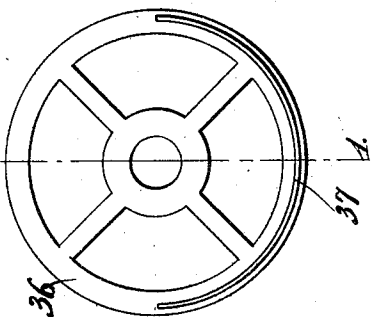


Fig. 2.

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2 SHEETS—SHEET 2.

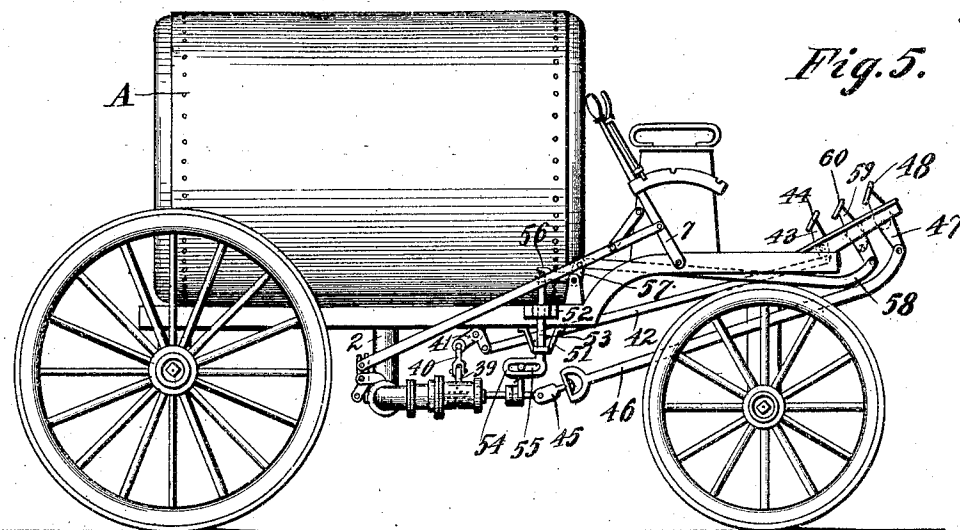
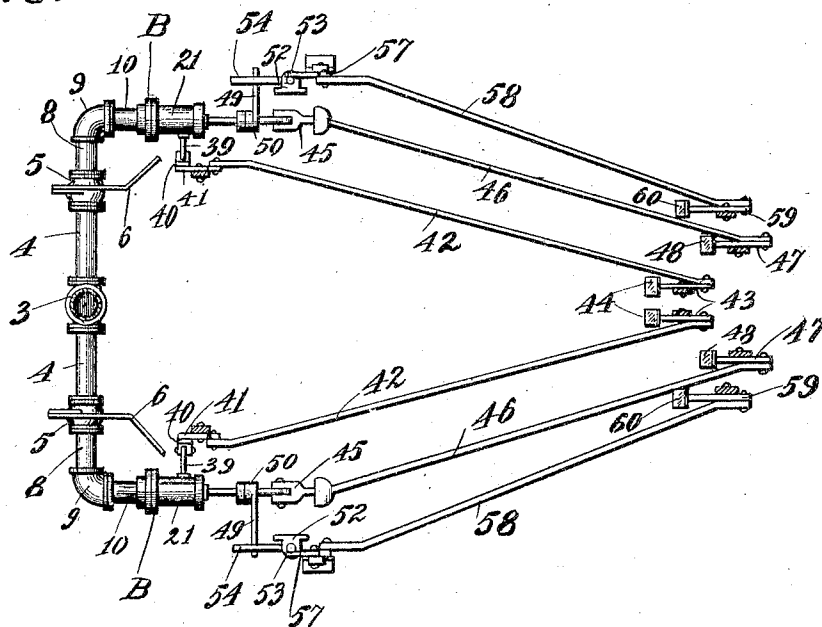


Fig. 6.



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UNITED STATES PATENT OFFICE.

JAMES C. WILSON, OF ST. LOUIS, MISSOURI, ASSIGNOR TO ST. LOUIS STREET FLUSHING MACHINE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION.

STREET-SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 778,934, dated January 3, 1905.

Application filed July 27, 1903. Serial No. 167,136.

To all whom it may concern:

Be it known that I, JAMES C. WILSON, a citizen of the United States, and a resident of the city of St. Louis, State of Missouri, have invented a new and useful Street-Sprinkler, of which the following is a specification.

My invention relates to street-sprinkling devices; and its principal objects are to control the quantity of water discharged through the sprinkling-nozzle, to control the direction in which the water is discharged, to control the distance to which the water is thrown, to secure an easy and convenient regulation of the sprinkling-nozzle, and other objects hereinafter appearing.

My invention consists in the parts and in the arrangements and combinations of parts hereinafter described.

In the accompanying drawings, which form part of this specification, and wherein like symbols refer to like parts wherever they occur, Figure 1 is a longitudinal sectional view of the sprinkling-nozzle. Fig. 2 is a transverse sectional view on the line 2 2 of Fig. 1. Fig. 3 is a side view of the spider of the valve. Fig. 4 is a sectional view on the line 4 4 of Fig. 3. Fig. 5 is a side view of a complete street-sprinkler equipped with my improvements; and Fig. 6 is a plan view of the discharge-pipes, valves, nozzles, and controlling-levers and connections.

In sprinkling streets it is desirable to use different amounts of water per square foot of pavement, depending upon the character of the pavement. It is also desirable to throw the water greater or less distances, depending upon the width of the street. By my improvement the driver of a street-sprinkler can from his seat conveniently vary either the amount of water discharged or the distance the water is thrown, or both together.

Referring to Figs. 5 and 6, a tank A is mounted upon running-gear having a frame of a suitable construction and is provided with a discharge-pipe 2. The latter is connected by a T 3 to horizontal pipes 4 4, leading to the valves 5 5, by which the supply of water to the nozzle may be cut off. The said valves

5 5 are controlled by connecting-links 6 6 and levers 7 7, only one of the latter being shown. The parts of the combination just enumerated may be of any suitable construction, and detailed description thereof is not essential to an understanding of the present invention.

Pipes 8 8 and elbows 9 9 lead from the valves 5 5 to the spraying-nozzles B B. The details of the spraying-nozzle are shown in Figs. 1 to 4. The mounting-section 10 is provided at one end with a flange 11, by means of which it is secured to the elbow 9 in any usual manner. At the other end the mounting-section 10 is shaped and equipped for a water-tight joint with the casing of the spraying-nozzle, which will permit rotation of the said casing. For this purpose the end adjacent the casing is provided with an internal annular recess 12 and an integral flange 13, and connected to the flange by bolts 16 is a cooperating ring 14, provided with an annular recess 15 on the face adjacent the recess 12. When thus connected, the two recesses 12 and 15 are adjacent and together make a single internal annular recess L-shaped in cross-section to receive the connecting parts of the casing 21 and the packing elements. The sprinkling nozzle B comprises also an outer casing 21, which extends into the mounting-section 10 and is provided intermediate its ends with a flange or circumferential projection 19, which extends into the annular recess 12 in the mounting-section 10. A flanged packing-ring 17, L-shaped in cross-section, surrounds the casing 21 and rests in the recess 15 and projects into the recess 12, and between the packing-ring 17 and the casing-flange 19 is a compressible annular gasket 18, by means of which the joint is made water-tight. By tightening or loosening the nuts on the bolts 16 the gasket may be more or less compressed, and the joint may thus be made more or less tight, while still permitting the rotation of the casing 21.

The end of the casing opposite the mounting-section 10 is screw-threaded and provided with a screw-threaded cap-piece 22, having a central opening through which the valve-

stem 24 extends. Intermediate its ends the casing is perforated, the perforations 23 being shown extending longitudinally the major portion of the distance between the joint with the mounting-section 10 and the cap-piece and circumferentially approximately a semi-circumference. The interior of the casing is uniformly cylindrical throughout its length to provide for the reciprocation and rotation of the regulating-valve 25.

The valve 25 has a stem 24, provided with a shoulder 26 and a screw-threaded portion 27 intermediate its ends and at its inner ends a shoulder 28 and screw-threads 29. Between the shoulder 26 and the nut 30 upon the screw-threaded portion 27 are rigidly secured disks 31 and 32, which clamp between them a flexible valve-cup 33. The flexible valve-cup projects away from the cap-piece 22 and toward the water side of the valve, the pressure of the water serving to hold the cup in close contact with the walls of the casing, so as to prevent the passage of water to the rear of the disks 31 and 32. The disk 32 is provided with a semicylinder 34, preferably integral therewith, extending parallel with the valve-stem and having a length approximately equal to the distance from the inner face of the disk 32 to the shoulder 28 of the valve-stem 24. The disk 32 and the immediately adjacent portion of the semicylinder 34 are of slightly-smaller diameter than the remaining portion to accommodate the projecting portion of the valve-cup 33. Between the shoulder 28 and the nut 35 upon the screw-threads 29 of the valve-stem is rigidly secured a spider 36, having upon the face toward the semicylinder 34 a flange 37, projecting rearwardly into and supporting the inner end of the semicylinder 34. A flexible packing-sheet 38 of material impervious to water—for example, leather or rubber—is wrapped about the exterior of the semicylinder 34 between it and the casing 21 and passes over the edges of the semicylinder and under the valve-stem 24, as clearly shown in Fig. 2. By this means the close contact necessary for a cut-off valve is secured. The rigid semicylinder 34 prevents the pressure of the water forcing the packing into the perforations 23.

By mechanism hereinafter described the valve-stem 24 may be both reciprocated and rotated, and the casing 21 may be rotated. By moving the valve-stem and valve inwardly it will be seen that the water is cut off from the circumferential series of perforations 23 in succession, and so the amount of water discharged is diminished. By rotation of the valve-stem and valve the water-supply may be cut off from the longitudinal series of perforations 23 in succession, and so the amount of water discharged is diminished, being cut off entirely from the portion of the pavement toward the sprinkler, but not affecting the discharge upon the remainder. By rotation

of the casing 23 in the opposite direction the supply of water to the same longitudinal series of perforations may be cut off; but the supply of water will be cut off from the portion of the pavement farthest away from the sprinkler, and the discharge upon the part of the pavement toward the sprinkler will not be changed. By combining these adjustments the direction of discharge may be changed without altering the amount of water discharged, or both the direction and the amount of the discharge may be changed at will.

The mechanism for adjusting the nozzle and valve will now be described.

The casing 21 is provided with a rigidly-attached rod 39. The rod is connected to a bell-crank lever 41, mounted upon the frame of the running-gear by means of a link 40, pivotally attached to both rod and lever, the two pivots being at right angles to each other. Connected to the bell-crank lever 41 is a connecting-link 42, leading to a lever 43, mounted upon the footboard of the running-gear and provided with a foot-piece 44 within convenient reach of the driver's foot. By this mechanism the rotation of the casing 21 is accomplished.

The extreme outer end of the valve-stem 24 is connected, by means of a universal coupling 45, conventionally shown, to a connecting-link 46, which leads to a lever 47, mounted upon the footboard of the running-gear near the lever 43 and having a foot-piece 48. The universal coupling 45 is used to provide for the necessary rotation of the valve-stem about to be described. By this mechanism the longitudinal movement of the valve 25 is accomplished. The valve-stem 24 is further provided with an arm 49, extending laterally therefrom and secured thereto by means of a set-screw passing through the collar 50 integral with the arm 40. Guides 51 and 52 are mounted upon the frame of the running-gear, in which a rod 53 reciprocates vertically. The rod 53 has a horizontal projection 54 at its lower end provided with a longitudinal slot 55, into which the arm 49 extends. At the upper end the rod 53 has a lateral projection which engages the forked arm 56 of a bell-crank lever 57, mounted upon the frame of the running-gear. The other arm of the bell-crank lever 57 is connected to a connecting-link 58, which leads to a lever 59, mounted upon the footboard of the running-gear and provided with a foot-piece 60. By this mechanism the rotation of the valve 25 is accomplished.

It will be seen from Fig. 6 that there is a spraying-nozzle on each side of the sprinkler and that the operating mechanism for one is a counterpart of the operating mechanism of the other.

Obviously the construction hereinbefore described admits of considerable modification

without departing from my invention, and I do not wish to be restricted to the specific construction hereinbefore described.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A street-sprinkler comprising a frame, a tank thereon, a spraying - nozzle connected with said tank and having a rotatable casing and valve therein longitudinally and rotatably movable, means mounted on said frame for rotating the casing and means mounted on said frame for moving the valve.

2. A street-sprinkler comprising a frame, a tank thereon, a spraying - nozzle connected with said tank and having a longitudinally and rotatably movable valve provided with a valve-stem, a laterally - extending arm upon said valve-stem, guides upon said frame, a rod movable in said guides and provided at one end with a lateral slotted projection with which the said valve-stem arm engages, and a lateral projection upon the opposite end, a bell-crank lever mounted upon said frame and having upon one arm a fork engaging the said lateral projection upon the said rod, an actuating-lever and bell-crank lever, whereby by operation of the said actuating-lever the valve may be rotated.

3. A street-sprinkler comprising a frame, a tank thereon, a spraying - nozzle connected with said tank and having a longitudinally and rotatably movable valve provided with a valve-stem, an actuating-lever upon said frame, a link connected to said actuating-lever, and a universal joint connecting said link and valve-stem, whereby by the operation of the said actuating-lever the valve may be reciprocated longitudinally of the nozzle.

4. A street-sprinkler comprising a frame, a tank thereon, a spraying - nozzle connected with said tank and having a rotatable casing and a longitudinally and rotatably movable valve, said valve having a valve-stem, a lateral arm upon said casing, a lateral arm upon said valve-stem, actuating-levers adjacently mounted upon said frame, and connecting means between said levers and said casing-arm, valve-stem arm, and valve-stem respectively whereby said casing may be rotated and said valve may be reciprocated and rotated.

5. A sprinkling-nozzle comprising a mounting-section, a casing rotatably mounted therein and provided with perforations and a rotatable valve within said casing adapted to close some or all of said perforations.

6. A sprinkling-nozzle comprising a casing provided with perforations, and a longitudinally and rotatably movable valve within said casing adapted to close some or all of said perforations.

7. A sprinkling-nozzle comprising a mounting-section, a casing rotatably mounted therein and provided with perforations, and a valve within said casing longitudinally and rotatably movable relative thereto, whereby some or all of said perforations may be closed.

8. A sprinkling-nozzle comprising a mounting-section, a casing rotatably mounted therein and provided with perforations, and a rotatable valve within said casing, said valve and casing being relatively longitudinally movable, whereby some or all of said perforations may be closed and the direction of the discharge may be changed.

9. A sprinkling-nozzle comprising a casing provided with perforations, and a valve therein having contact therewith over an area not smaller than the perforated area, the said valve and casing being relatively longitudinally and rotatably movable, said valve being arranged to close some or all of said perforations.

10. A sprinkling-nozzle comprising a cylindrical casing provided with perforations in a portion of its periphery, and a valve within said casing longitudinally and rotatably movable relatively thereto and provided with a valve-cup and cylinder-segment having an area of contact with the said casing not smaller than the perforated area of said casing.

11. A sprinkling-nozzle comprising a cylindrical casing provided with perforations in a portion of its periphery, a cap-piece upon one end of the said casing having a central opening, and a valve within said casing comprising a valve-stem extending through said opening in the cap-piece, a valve-cup and retaining-disks secured upon the said valve-stem, one of said disks having an integral cylinder-segment extending inwardly, a spider secured upon the inner end of the said valve-stem and having a flange engaging the said cylinder-segment, and a flexible packing upon the cylinder-segment between said cylinder-segment and the said casing.

Signed at St. Louis, Missouri, this 24th day of July, 1903.

JAS. C. WILSON.

Witnesses:

JAMES A. CARR,
J. B. MEGOWN.