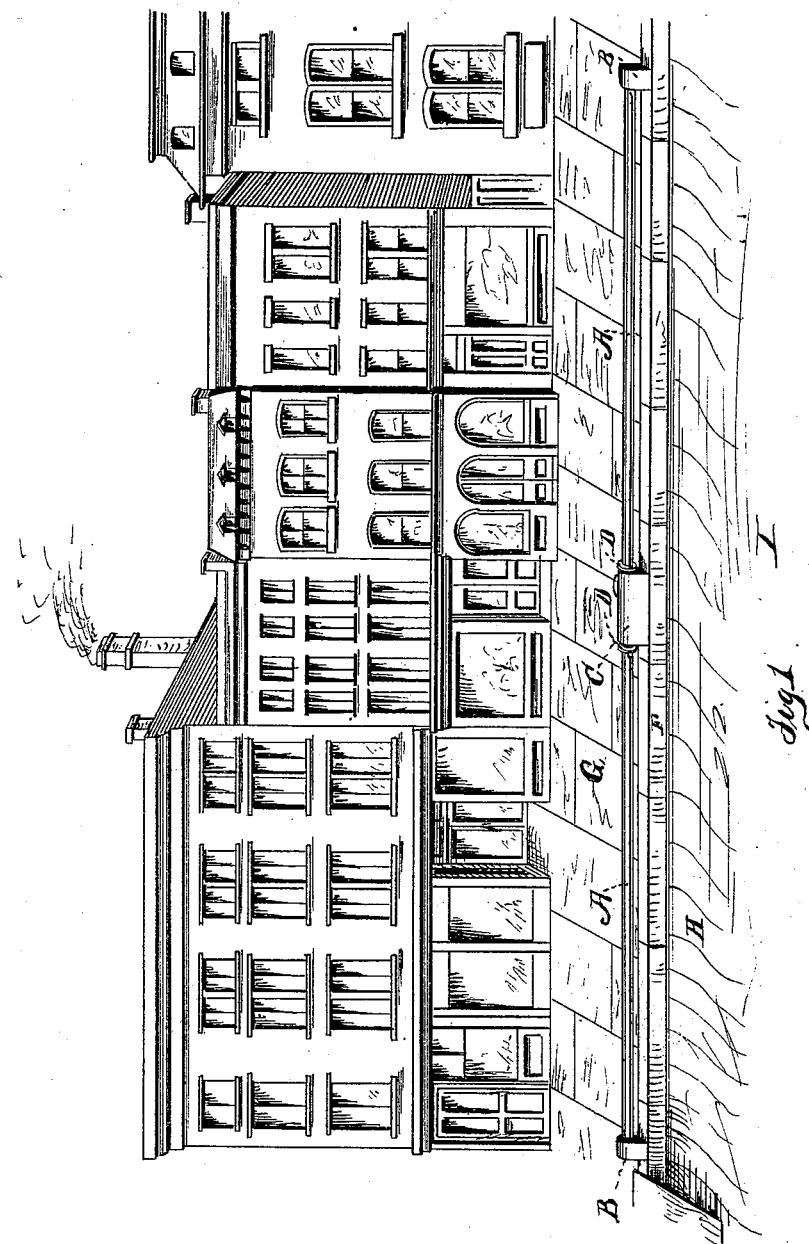


2 Sheets—Sheet 1.

M. W. BINGA.  
Street-Sprinkling Apparatus.

No. 217,843.

Patented July 22, 1879.



WITNESSES:

*H. A. Gray  
and Brooks*

*M. William Binga*

INVENTOR

*by J. W. SEE.*

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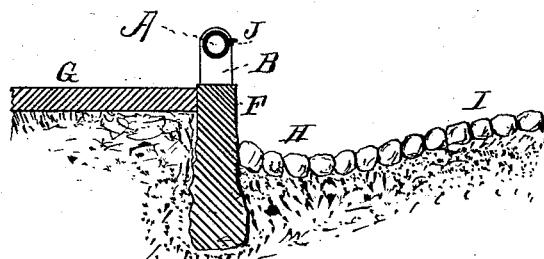


Fig 2

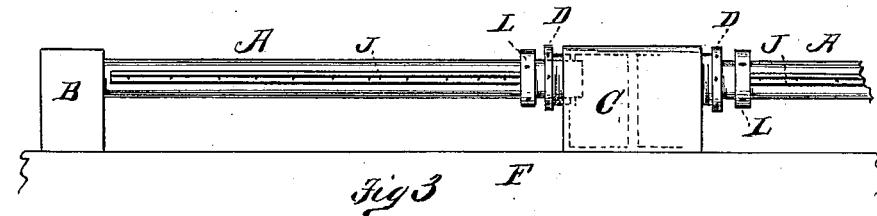


Fig 3 F

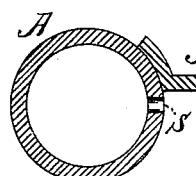


Fig 4

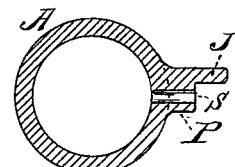


Fig 5

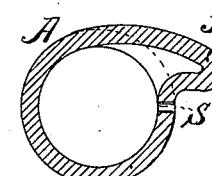


Fig 6

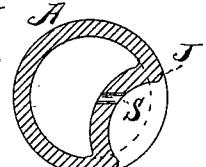


Fig 7

WITNESSES:

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Geo. W. Wood

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by J. W. SEE.

ATTORNEY

# UNITED STATES PATENT OFFICE.

M. WILLIAM BINGA, OF CINCINNATI, ASSIGNOR OF ONE-HALF HIS RIGHT  
TO H. L. MOREY, OF HAMILTON, OHIO.

## IMPROVEMENT IN STREET-SPRINKLING APPARATUS.

Specification forming part of Letters Patent No. **217,843**, dated July 22, 1879; application filed  
June 17, 1879.

*To all whom it may concern:*

Be it known that I, M. WILLIAM BINGA, of Cincinnati, Hamilton county, Ohio, have invented certain new and useful Improvements in Street-Sprinkling Apparatus, of which the following is a specification.

My invention relates to that system of street-sprinkling which involves the use of a perforated pipe laid at the curb-stone, the pipe being perforated with jet-holes, and connected with the water-mains of the city.

I lay no claim to this general manner of sprinkling streets, the system being old, having been introduced in Scotland some years ago.

The object of my invention is to increase the utility of such apparatus by providing means for directing the water-jets to any part of the street's width; to provide means by which the apparatus may be used for washing the gutters in an effective manner; to provide means for sprinkling the sidewalk as well as the roadway, and to provide such a shelter for the jet-holes as will prevent the apparatus from becoming inoperative on account of the accidental closure of the jet-holes.

While I describe my apparatus in connection with the street-sprinkling art, it is equally applicable to lawn-sprinkling and to other purposes where jets are to be delivered in a horizontal line under circumstances which tend to clog the jet-holes with dirt from the outside.

My invention consists of a perforated pipe journaled in bearings attached to a curb-stone, sidewalk, street, road, or lawn, one or both of the bearings being in suitable connection with proper water-mains, and of a pipe having a longitudinal row of perforations and a projecting guard attached above the holes.

In the accompanying drawings, Figure 1 is a perspective view of a block of buildings in a city with my improved street-sprinkling apparatus attached to the curb-stone in front. Fig. 2 is a transverse section. Fig. 3 is an elevation of a short section of curb-stone surmounted by my apparatus; and Figs. 4, 5, 6, and 7 are transverse sections of the perforated pipe.

In Fig. 1 it is seen that the curb-stone F is surmounted by bearings B, B, and C. The bearings are securely attached to the curb-

stone, and the central one, C, is made hollow, and is placed in connection by proper piping with the street-main or with any other source of water under pressure. The connecting-pipe should be provided of course with a suitable stop-cock.

A piece of tube, A, reaches from the central bearing, C, to each of the end bearings, B, and the central bearing, C, has stuffing-boxes D to prevent the waste of water. The tubes A are open at the end which is in the central bearing, but sealed at the end in the bearing B.

In order that one section of this tube may be used at a time, the hollow bearing C may have a partition within it, and be so connected to the main that water may be admitted to one compartment or both. The stop-cock by which the admission is controlled should be located where it is easily accessible, preferably in the neighborhood of the central bearing, C.

Fig. 3 exhibits the partition which divides the bearing C into two compartments. The tubes A are perforated with a longitudinal row of small jet-holes, and in Fig. 3 are shown as having secured to them the capstan collars L. These collars are drilled to receive a lever by which the tubes may be revolved.

Water being admitted to one compartment of the central bearing, C, will enter one of the tubes and will issue from the jet-holes, and be projected into the air a greater or less distance, according to the pressure of water. By rotating the tube the jets may be directed vertically, horizontally, or at any angle, and may be used to sprinkle either the roadway or the sidewalk, and the jets may be directed nearly downward, so as to wash the gutters. The distance at which the jets will reach the ground is determined by the angle at which the issues are set and by the pressure. These conditions may be controlled by the rotating lever and the admission-cock.

For lawn operations the line of tubes would be located near the center of the area which it is to operate on, and will sprinkle one half such area on one side and the other half on the other side by the tube being rotated and reversed.

When the gutters are washed the maximum

force of the stream is brought into useful action by reason of the proximity of the issue-orifices to the gutter.

The length of each section of tube between bearings is simply a matter of convenience, and may, if desired, be half a block, or even a whole block. In the latter case one of the end bearings, B, is suppressed, and replaced by a hollow bearing having a single compartment and stuffing-box, and there would be no hollow central bearing. To steady the tube intermediate bearings would be used at any number of points. When the sprinkling process is completed the admission-cock is closed and the tubes drained by rotating them till the holes issue downward.

It will be at once seen that under ordinary circumstances the small issue-holes are liable to become clogged from the outside, not by floating dust, but by dirt and mud being thrown into them by vehicles and animals. To guard against this I arranged a protecting shed or guard, J, over the issue-holes. This guard is formed separately and attached to the pipe by brazing or riveting, as shown in Fig. 4, or it may be incorporated into the section of the pipe while being drawn at the pipe-mill. Such sections, equivalents of each other, are shown in the last three figures.

In practice I prefer the pipe shown in Fig. 5 for several reasons: First, it presents a regular annular section having simple exterior additions. Second, by reason of extra thickness P under the guard it gives superior length to the issue-orifices S; and, thirdly, it is more adapted to ordinary processes of lap-welded pipe manufacture. All of these sections must of course be got into a cylindrical shape at the bearing.

Pipe of the section shown in Fig. 4 is rounded by the simple omission of the guard J at the desired points; that shown in Fig. 5 by the removal of the projecting guard at the desired points and the last three sections shown by swaging the pipe.

Instead of reducing the pipe to roundness it may be built up to roundness by being provided with round collars or sleeves whose interior fits the pipe. The ordinary thickness

of tube hardly gives length enough to the issues, and in most of the sections shown it is necessary to insert short issue-nipples in the pipe. As before stated, Fig. 5 shows a section presenting peculiar advantages in this direction. When the pipe is to be joined it is rounded, as heretofore described, and is then treated as ordinary pipe.

While the plan of a rotating tube presents inestimable advantages, it may be found sufficient in some cases to use a rigid tube in the old way, and in such case the guard upon my improved pipe becomes peculiarly useful, as rigid pipes cannot be turned so as to bring their issues under.

When rigid pipes are used drainage must be provided for. This may be done by giving the pipe a slope and putting a small hole in the under side of the lowest portion of the pipe. But little water will waste from such a hole, and when operations are over all water will leave the pipe. Another plan is to apply any of the well-known relief-valves, which open inward and are kept closed only so long as a pressure is upon them.

Instead of the capstan-collars L and a lever, a wrench or spanner which will fit and turn the pipe may be used.

I claim as my invention—

1. In a street-sprinkling apparatus, the combination, with a perforated sprinkling-pipe, of stationary bearings and water-connections, substantially as set forth.
2. In a street-sprinkling apparatus, the combination, with perforated sprinkling-pipes closed at one end, of a hollow double compartment bearing having water-connections, substantially as set forth.
3. The perforated pipe A, combined with the longitudinal guard J, substantially as set forth.
4. The perforated pipe A, combined with the thickening issue-rib P, substantially as set forth.

M. WILLIAM BINGA.

Witnesses:

ALFRED J. ANDERSON,  
J. W. SEE.