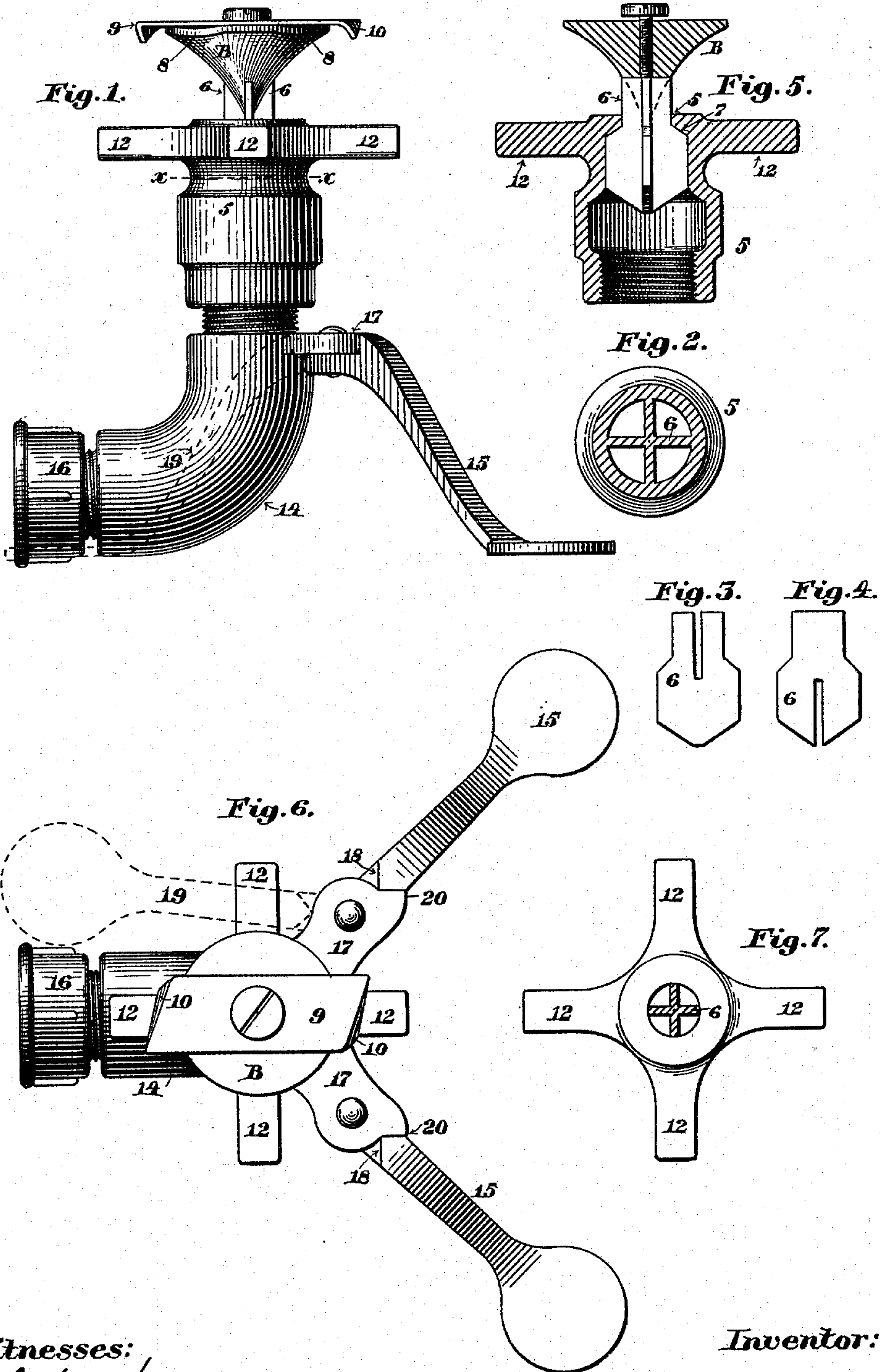


(No Model.)

S. S. BLACK.  
LAWN SPRINKLER.

No. 518,560.

Patented Apr. 17, 1894.



Witnesses:

L. M. Hill.  
Kate S. Black

Inventor:

Stephen S. Black



# UNITED STATES PATENT OFFICE.

STEPHEN S. BLACK, OF PASADENA, CALIFORNIA.

## LAWN-SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 518,560, dated April 17, 1894.

Application filed November 18, 1892. Serial No. 452,389. (No model.)

*To all whom it may concern:*

Be it known that I, STEPHEN S. BLACK, a citizen of the United States, residing at Pasadena, in the county of Los Angeles and State of California, have invented a new and useful Lawn-Sprinkler, of which the following is a specification.

My invention relates to that class of sprinklers intended to wet a square plot of ground, and consists of a nozzle adapted to screw on any suitable standard, the bore of the nozzle being divided longitudinally by two septa cutting each other at right angles, and protruding through the delivery orifice far enough to engage and support a trumpet shaped deflector supporting on its upper and plane surfaces a revoluble vane.

Referring to the accompanying drawings, Figure 1, is a side view of my invention mounted on a low standard adapted to be drawn over the grass when in action by applying traction to the hose. Fig. 2 is a cross section through the line  $xx$  of Fig. 1. Figs. 3 and 4, show the construction of the two septa. Fig. 5 is a vertical cross section through the head, showing the united septa in side elevation, without the band. Fig. 6 is a top view of instrument mounted on standard. Fig. 7 is a cross section through the line 6, 6, in Fig. 1.

All lawn sprinklers with one exception are designed to wet a circular plot. In cities it is especially desirable to wet the ground in squares, as it is impossible with the ordinary circular spray to wet it evenly and at the same time avoid wetting the sidewalks. I accomplish this desirable result by dividing a nozzle of sufficient capacity into four equal parts as shown in Fig. 2, by means of two septa made from solid metal or preferably in the forms shown in Figs. 3 and 4, and adapted to be united by slipping the solid or unslotted end of one into the slotted end of the other, the two sheets or septa then crossing each other at right angles. They are now in order to be driven into the nozzle 5, Fig. 5, from the lower or threaded end until the small ends of the septa 6 project through the orifice and the beveled shoulders of same are solid in the beveled shoulder of the hole, as shown at 7, Fig. 5. These septa are so placed as to be in the same vertical plane as the horns 12, 12, on the outside of nozzle. I have two objects

in view in this construction; to support the stream deflector B, Fig. 1, and at the same time to divide the water as it issues from the nozzle into four streams, having each a cross section in the form of a quadrant. The deflector B is made conical or preferably, in the form externally of a trumpet bell, but it is a solid instead of a shell. The inverted apex of this deflector has two slots, cutting each other at right angles and of sufficient depth to receive the septa which are together driven in snugly. The rim of the deflector is bent down slightly, at four points forming four lips, corresponding radially to the four angles formed by the intersection of the two septa as shown at 8, 8, Fig. 1. The amount of deflection should be sufficient to divert that portion of the stream from an upward direction to one nearly horizontal.

On the top of the deflector is a small vane 9, Fig. 1, pivoted by the screw in the center. This vane projects over the margin of the deflector sufficiently to form a little paddle at each end by turning it down diagonally as shown at 10, thus presenting an inclined surface to the stream as it issues from under the rim of the deflector B. The object of this revoluble vane is to catch and scatter a small quantity of water in the space immediately around the instrument, which would otherwise not get quite enough. The vane is revolved by the sheet of water rushing outward and upward and acting on its turned-down ends. The nozzle 5, Fig. 1 is provided with four horns 12, 12, &c., Figs. 1 and 6 which serve as a grip for the hands and also as a protection for the upper parts in case of upsetting. The horns correspond to the corners of the square plot irrigated and serve as pointers in setting the instrument in position for action.

In Fig. 1, is shown a low standard 14 consisting of a street elbow provided with two legs 15, 15; the hose coupling 16 being attached directly to the standard itself. When coupled with a hose, the hose forms a third element of support giving abundant stability. The standard 14, Fig. 1, is provided with two lugs 17, 17, radiating outward with horizontal faces, adapted to form a horizontally movable joint with the legs 15, 15, when secured by rivets. Each lug is provided on its outer



extremity with a small projecting shoulder 20, Fig. 6 adapted to stop the leg from going beyond a certain point by means of a V shaped shoulder on the leg as shown at 18 5 Fig. 6. The object and advantage of this construction is to provide a means of reducing the instrument to the smallest possible size without dismembering it for packing. This is done by turning these legs around 10 horizontally on their joints into the position shown by dotted lines 19 Figs. 1 and 6. It can then be packed in a comparatively small box.

The action of the instrument is as follows: Water issuing from the four quadrant shaped 15 holes of the nozzle strikes the concavo-convex surface of the deflector, where each stream attempts to spread out sidewise, but meeting the streams on each side a heavy column of water is formed on the four lines 20 where the margins of each separate stream coalesce with those of its neighbors which are on lines radiating upward and outward from the edges of the septa 6, 6, Fig. 1. The water then leaves the margin of the deflector, 25 in a smooth film or sheet, much thicker at four points than in the intermediate portions, as indicated above, which portions correspond to the sides of the square sprinkled plot, the heavier portions of the stream going 30 to the corners by virtue of their greater carrying power, due to the larger quantity of water which they contain. The four turned down portions of the rim of the deflector 8, 8, &c., Fig. 1, serve to depress the stream at 35 these points so that it will not overshoot the sides of a true square.

I am aware that sprinklers have been constructed having a nozzle and conical deflector supported by a round stem issuing centrally 40 from the nozzle orifice and leaving an annular opening for the escape of the water which wets a circular plot. My device is radically different from this both in construction and function.

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

1. In a sprinkling apparatus, the combination with the nozzle of longitudinal septa in the mouth thereof which divide the passage into 50 channels and project beyond the delivery orifice, and a stream deflector in the form of an inverted cone secured at its apex to the projecting ends of the septa, substantially as described.

2. In a sprinkling apparatus the combination with a nozzle of two longitudinal septa in the mouth thereof which cross each other at right angles, each being provided with a transverse slot in position to receive the middle portion of the other, and which divide the 60 passage into four channels and project beyond the delivery orifice, and a stream deflector in the form of an inverted cone with concaved sides provided with crossed slots in its apex, which engage with the projecting 65 ends of the septa for the purpose of securing it thereto, substantially as described.

3. In a sprinkler apparatus the combination with the nozzle, of longitudinal septa in the mouth thereof which divide the passage 70 into channels and project beyond the delivery orifice, and a stream deflector in the form of an inverted cone with concave sides provided with recesses adapted to receive the projecting ends of the septa for the purpose of securing it thereto substantially as described. 75

4. In a sprinkling apparatus the combination with the nozzle of longitudinal septa which divide the passage into channels and project beyond the delivery orifice, a deflector 80 in the form of a cone with its apex toward the delivery orifice secured to the projecting ends of the septa, and a vane pivotally mounted upon the base of the cone, having wings which project over the edge of said base toward the nozzle and are laterally inclined toward the direction of the stream as it leaves the cone, substantially as described. 85

5. In a sprinkling apparatus the combination of a nozzle and an inverted cone stream 90 deflector having segments of the margin of the base depressed forming lips thereon, as described, and suitable means for the supporting of cone with apex toward the delivery orifice substantially as described. 95

6. In a sprinkling apparatus the combination with a spraying device of an elbow shaped standard having lugs projecting from its vertical portion and suitably curved legs adapted to form a horizontally movable joint on 100 said lugs whereby the feet may be extended radially or swung around parallel with the horizontal portion of the standard substantially as described and illustrated.

STEPHEN S. BLACK.

Witnesses:

LILLIE M. HILL,  
KATE S. BLACK.