

(No Model.)

H. K. & J. L. POTTER.
SPRINKLER.

No. 504,069.

Patented Aug. 29, 1893.

Fig. 1.

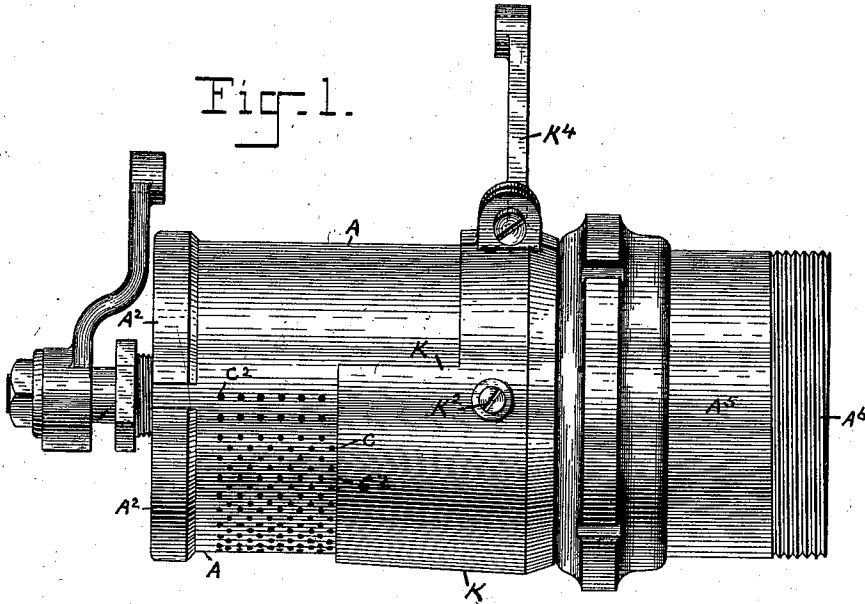


Fig. 2.

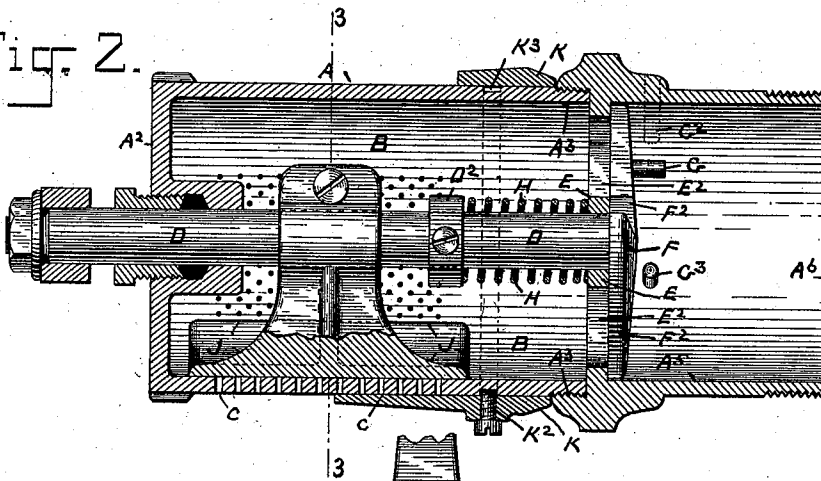
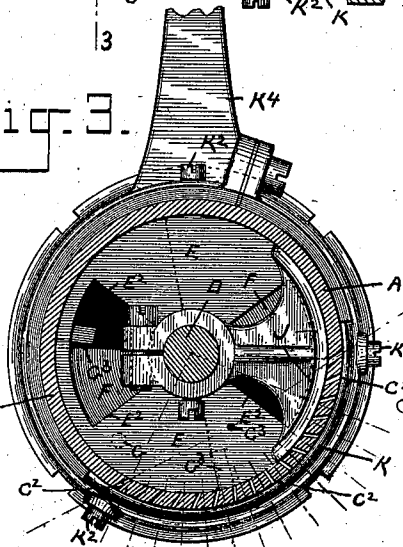


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY K. POTTER AND JOHN L. POTTER, OF SOMERVILLE, MASSACHUSETTS

SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 504,069, dated August 29, 1893.

Application filed December 22, 1891. Serial No. 415,937. (No model.)

To all whom it may concern:

Be it known that we, HENRY K. POTTER and JOHN L. POTTER, citizens of the United States of America, and residents of the city of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Sprinklers, of which the following is a full, clear, and exact description.

The sprinkler of this invention is more especially designed for watering or sprinkling carts although as is obvious it may be employed for other useful purposes.

In substance, the sprinkler is composed of a cylindrical shell, to be at one end in communication with the water-supply and at its other end closed and having for one third or thereabout of its surface in the direction of its circumference a series of jet-holes or perforations, preferably arranged in lengthwise parallel rows severally opening to the inner and outer sides of the shell, in combination with two valves both attached to and carried by a common shaft rotating within and at one end adapted to be rotated at the outer side of said shell and the one adapted to seat upon and as said shaft is rotated to move about and in contact with the inner surface and thereby to open and close said perforations of the shell, and the other adapted as said shaft is rotated to rotate within and across said shell and thereby in co-operation with a fixed transverse seat of said shell for it and which has ports or openings through it, to open and close the communication of said shell with the water-supply and all otherwise substantially as hereinafter described; and again and forming part of this invention said jet-holes or perforations in some portions severally have their walls in planes parallel, or substantially so, to radial lines running from the axial line of the shell and in other portions severally have their walls in planes parallel, or substantially so, to radial lines running from a longitudinal line of the shell that is parallel to and is located between the axial line and outer surface of the shell, preferably midway or thereabout of the total width in a circumferential direction of the portion of the outer surface of the shell occupied by all of said perforations.

In the drawings, forming part of this specification, Figure 1 is an exterior view of the

sprinkler from end to end. Fig. 2 is a central longitudinal section. Fig. 3 is a transverse section, line 3—3, Fig. 2.

In the drawings, A is the nozzle of the sprinkler. This nozzle is tubular and at one end A² it is closed and at its other and water receiving end A³ it is screwed into the open end of a pipe or tube A⁵, which, at its other end A⁶, is to be connected in any suitable manner to a water-supply, for instance, a water tank (not shown) of a street-sprinkler cart and all in a manner to present the outer surface of the nozzle in the proper position, direction and relation for use for that purpose and as well known.

B is the chamber or compartment of the nozzle.

C, C² are orifices or jet-holes preferably in parallel rows and in width severally embracing one third or thereabout of the surface and in the direction of the circumference of the nozzle. These jet-holes make communication between the chamber B and the outside or surface of the nozzle. The jet-holes C severally have their walls parallel to radial lines from the axial line of the nozzle and the jet-holes C² have their walls parallel to radial lines from a longitudinal line parallel to and lying between the axial line and the outer surface of the nozzle and the position of which line preferably is about midway of a radial line of the nozzle, as for instance, at the black dot C³, Fig. 3.

Fig. 3 shows a row of jet-holes C² and dotted radial lines to indicate the position and direction of the walls of the jet-holes C relative to those of the jet-holes C². Preferably the rows of jet-holes C, C² are arranged to alternate with each other and those of each row to be midway of those of the next adjacent rows at each side and again preferably the jet-holes of two, at least, of the rows of jet-holes which are at one and the outer side of the whole series of rows when the nozzle is in position on the cart, are to be of larger area than the jet-holes of all the other rows. By a combination of jet-holes C, C² of directions substantially such as described the streams which issue therefrom are in directions such that they more or less cross each other, and thereby the water is the better sprayed and distributed.

D is an axial shaft—and turning at its opposite end-portions in suitable bearings of the nozzle A and at one end-portion projected through the closed end A² of said nozzle for convenience in making connections to rotate it and at the other end-portion having its bearings in a fixed disk E, diametrically crossing the end of the chamber B of the nozzle toward the pipe A⁵ and as particularly shown forming a part of said pipe. The disk E has openings or ports E² through it and its face presented toward the end A⁶ of the pipe is the seat for a disk-valve F which has openings or ports F² corresponding in number and shape to those of its said disk and is rigidly attached to the inner end-portion of said shaft D all so that by rotating said shaft the ports F² of the disk-valve F can be brought to register with the ports E² of the disk E thus opening the nozzle to the water-supply and the ports F² of the disk-valve F can be placed out of said register and in position registering with the closed portions of the disk and the closed portions of the disk-valve with the ports of the disk thus closing or shutting off the water-supply from the nozzle.

G, G² and G³ are stop-pins, the pin G held on said valve F and the pins G², G³ on said pipe A⁵ and relatively situated to determine the movement of the valve for either of said registerings of its ports and closed portions with the corresponding portions of the disk as above explained. In lieu of these stop-pins obviously other means may be and preferably are provided for the same purpose, said means forming part of the operating mechanism (not shown) for rotation and which means are connected to the outer and projecting end of the shaft D. The stop-pins G, G², G³ are a convenience and not a necessity in the working of the rotating disk-valve and so this invention is not to be understood as being limited in any way thereto.

H is a coiled spring surrounding a part of the length of the shaft D at its innermost end-portion and confined end to end between an adjustable but otherwise fixed collar D² of said shaft and the fixed seating disk E for the valve F and all for the purpose of holding the valve F in close contact with its seat, it being understood that said shaft is suitably adapted for lengthwise movement in its bearings to allow of the same.

J is a valve having a seating-face which in one direction has a curvature corresponding to that of and such as to closely fit the inner periphery of the nozzle and is of a dimension diametrically of the nozzle preferably less than that of the full width of the rows of jet-holes of the nozzle and in the other direction of a length greater than the full length and to lay beyond the opposite ends of said rows of jet-holes. This valve J is detachably and adjustably secured to, and intermediate of the length of the shaft D and thereby, on a

proper adjustment of said valve, it, said valve, and the disk or rotating valve F can be relatively situated to secure a closing of the jet-holes embraced by the valve J therefor when the ports of the seat E for the rotating valve F are closed and vice versa, and also to secure a proportionate opening and closing of said jet-holes and said ports E² for a proper supply of water to the jet-holes in all other positions of the two valves.

K is a shield or valve encircling and adapted to be rotated on the nozzle at its outer side and by pin K² and groove K³ connection of it with the nozzle to be confined against moving lengthwise on the nozzle. This shield or valve is shaped and sized so that in one position it covers the jet-holes of the nozzle for the whole width but for only a portion of the length of their several rows, and in another position it leaves uncovered all of said jet-holes. The advantages of this shield in use are obvious and for the purpose of conveniently operating it, its arm K⁴ is to be suitably connected by proper mechanism.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a sprinkler, the combination with a nozzle that is chambered from end to end and at one end is closed and at the other end is adapted for communication with a water-supply and has water discharging openings or jet-holes along the length and for a portion of its outer circumference, of two valves F, J, one F of which is a disk that crosses said chamber of the nozzle and has ports F² and seats on a fixed plate E having ports E² and the other J of which is an arc-shaped plate fitting and seating and adapted to move around upon the inner circumference of the nozzle and of a shaft D axially arranged within and adapted to be rotated at the outer side of said chamber of the nozzle and having both of said valves held thereon, substantially as described, for the purposes specified.

2. In a chambered cylindrical nozzle for sprinkling purposes, water discharging jet-holes or openings located at the outer side and along the length and in the direction of the circumference of the nozzle and in a portion or portions, parallel, or substantially so, to radial lines from, and in another portion or portions parallel, or substantially so to radial lines from a longitudinal line of the nozzle parallel to the axis of the nozzle, substantially as described, for the purpose specified.

In testimony whereof we have hereunto set our respective hands in the presence of two subscribing witnesses.

H. K. POTTER.
JOHN L. POTTER.

Witnesses:

ALBERT W. BROWN,
MARION E. BROWN.