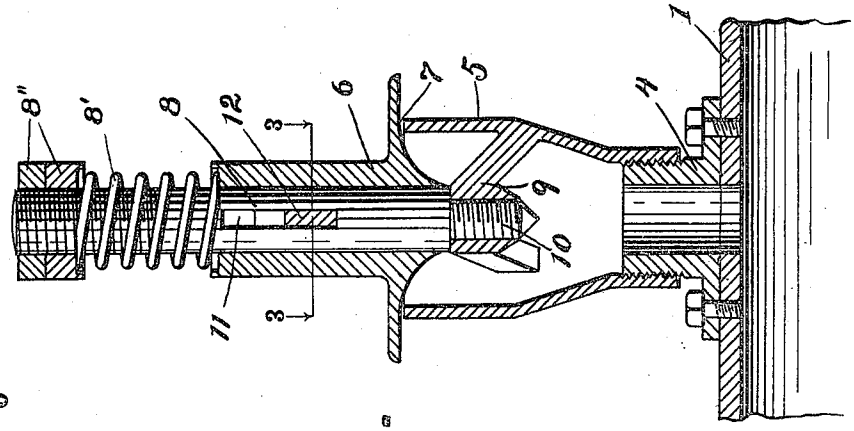
D. M. LUEHRS.

SPRAY HEAD.

APPLICATION FILED MAR. 5, 1908.

962,512. Patented June 28, 1910.



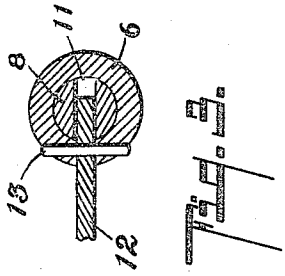


Fig. 3.

Fig. 2.

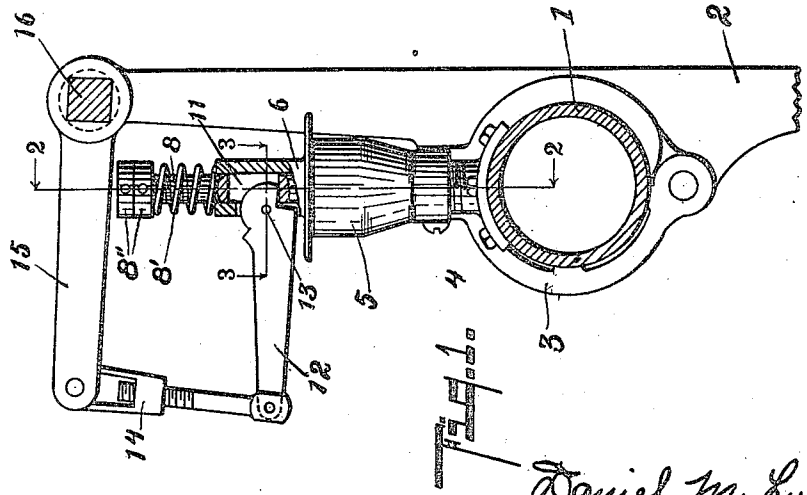


Fig. 1.

Witnesses

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UNITED STATES PATENT OFFICE.

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SPRAY-HEAD.

962,512. Specification of Letters Patent. Patented June 28, 1910.

Application filed March 5, 1908. Serial No. 419,386.

To all whom it may concern:

Be it known that I, DANIEL M. LUEHRS, a citizen of the United States, residing at Toledo, Ohio, have invented certain new and useful Improvements in Spray-Heads, of which the following is a specification.

This invention relates to improvements in spray heads.

The objects of this invention are:—first, to provide an improved spray head which will deliver a sheet of water in a plane substantially at right angles to the direction of the supply thereto: second, to provide an improved form of discharge surface or orifice for said spray head, which will insure delivery substantially in a plane sheet and maintain a substantially complete curtain of water; third, to provide an improved spray head which can be readily and effectively opened for flushing out sediment or obstructions.

Further objects, and objects relating to details of construction, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is fully illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure 1 is a detail view of my improved spray head and its controlling means, the supply pipe and certain details being indicated in section; Fig. 2 is a vertical sectional elevation, taken on a plane corresponding to line 2—2 of Fig. 1, the central column or support being indicated in full lines; and Fig. 3 is a transverse detail sectional view, taken on a plane corresponding to the lines 3—3 of Figs. 1 and 2.

In the drawing, similar numerals of reference refer to similar parts throughout the several views.

Considering the numbered parts of the drawing, on the supply pipe 1 is supported a suitable bracket or cross arms 2 by the hinged clamp 3. The nipple 4 of the spray head is retained in position on said pipe by any suitable means. On the nipple 4 is the nozzle 5, into which a cap or deflector 6 extends, having a flange 7, the inner surface of which in longitudinal section is parabolic in form. This cap 6 is supported on a column 8 which is screw-threaded at its inner end at 10 fitting into a suitable hole in the center of a spider or cross-arm 9. On the upper end of the column or shank 8 is a coiled spring 8′ which is secured adjustably against the upper end of the cap 6 by means of the lock nuts 8″. A transverse slot 11 is through the column 8, and into this extends the short end of a lever 12, which lever is fulcrumed on the pin 13 in the cap 8, through which it extends, the inner end of the lever resting against the bottom of the said slot 11, so that, when the lever is operated, it will lift the cap 6 of the spray head away from the nozzle and increase the aperture to permit a flushing which will wash away any sediment or obstruction. A rock shaft 16 is supported in the bracket 2 and is provided with an arm 15 which connects by the turn buckle link 14 to the outer end of the lever 12, whereby a plurality of these spray nozzles can be controlled by operating the rock shaft, and the connections can be independently adjusted.

By this construction, a spray head is provided which delivers a substantially continuous plane sheet of water, forming an effective curtain for obstructing the flow of air in an air purifier, and by employing a number of these spray heads a broad surface of water is effectively presented to passing currents of air, so that it will be impossible for any soluble impurities or ordinary dust to pass by the curtain thus formed.

A similar construction to control oppositely projecting spray heads may be supported on the opposite ends of the arms 2.

It is desirable in such an apparatus to provide means of readily flushing the spray heads, for frequently it is necessary to use the same water over and over again, and a sediment is likely to lodge in the narrow orifice and interfere with the proper flow. Therefore, a structure which can be readily thrown open for flushing and cleaning is very desirable in such relations, and this is accomplished as I have indicated, either at the will of the operator or periodically by any actuating means. Of course, where it is desired to use the water but once, the ad-

justing feature will not be so necessary, because the water will be free from sediment, and no provision will need to be made for flushing, in which event, the controlling means for opening the spray head might be omitted.

I desire to remark that the structure of my improved spray head is very effective in maintaining a substantially constant curtain of a thin sheet of water under considerable variations of pressure such as are likely to occur in service from city mains.

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

1. In a spray head, the combination of the supply pipe 1; a nipple 4 for said supply pipe with suitable means of securing it thereto; a nozzle 5 with a suitable centrally-located spider 9 therein; a cap or deflector 6 with a flange 7 having an inner parabolically curved surface arranged to deflect and spread the water discharged from said nozzle; a column 8 for supporting the same secured by suitable screw 10 to the spider 9, the said column being slotted at 11; a coiled spring 8′ on the said column with means for adjusting the tension between the said cap and the said column; a lever 12 fulcrumed on the pin 13 in the said cap or deflector, the short end of which extends within the said slot 11; a rock shaft 16 with an arm 15; and a turn buckle link 14 between the said rock shaft arm 15 and the long end of the lever 12, coacting substantially as described and for the purpose specified.

2. In a spray head, the combination of a nozzle 5 with a suitable centrally-located spider 9 therein; a cap or deflector 6 with a flange 7 having an inner parabolically curved surface arranged to deflect and spread the water discharged from said nozzle; a column 8 for supporting the same secured by suitable means to the spider 9, the said column being slotted at 11; a coiled spring 8′ on the said column with means for adjusting the tension between the said cap and the said column; a lever 12 fulcrumed on the pin 13 in the said cap or deflector, the short end of which extends within the said slot 11; a rock shaft 16 with an arm 15; and a turn buckle link 14 between the said rock shaft arm 15 and the long end of the lever 12, coacting substantially as described and for the purpose specified.

3. In a spray head, the combination of the supply pipe 1; a nipple 4 for said supply pipe with suitable means of securing it thereto; a nozzle 5 with a suitable centrally-located spider 9 therein; a cap or deflector 6 with a flange 7 having an inner parabolically curved surface arranged to deflect and spread the water discharged from said nozzle; a column 8 for supporting the same secured by suitable means to the spider 9, the said column being slotted at 11; a coiled spring 8′ on the said column with means for adjusting the tension between the said cap and the said column; and a lever 12 fulcrumed on the pin 13 in the said cap or deflector, the short end of which extends within the said slot 11, coacting substantially as described and for the purpose specified.

4. In a spray head, the combination of a nozzle 5 with a suitable centrally-located spider 9 therein; a cap or deflector 6 with a flange 7 having an inner parabolically curved surface arranged to deflect and spread the water discharged from said nozzle; a column 8 for supporting the same secured by suitable means to the spider 9, the said column being slotted at 11; a coiled spring 8′ on the said column with means for adjusting the tension between the said cap and the said column; and a lever 12 fulcrumed on the pin 13 in the said cap or deflector, the short end of which extends within the said slot, coacting substantially as and for the purpose specified.

5. In a spray head, the combination of a nozzle 5 with a suitable centrally-located spider 9 therein; a cap or deflector 6 with a flange 7; a central column 8 for supporting the same secured by suitable means to the spider 9, the said column being slotted at 11; a coiled spring 8′ on the said column with means for adjusting the tension between the said cap and the said column; a lever 12 fulcrumed on the pin 13 on the said cap or deflector, the short end of which extends within the said slot 11; a rock shaft 16 with an arm 15; and a turn buckle link 14 between the said rock shaft arm 15 and the long end of the lever 12, coacting substantially as described and for the purpose specified.

6. In a spray head, the combination of the supply pipe 1; a nipple 4 for said supply pipe with suitable means of securing it thereto; a nozzle 5 with a suitable centrally-located spider 9 therein; a cap or deflector 6 with a flange 7; a column for supporting the same secured by suitable means to the spider 9, the said column being slotted at 11; a coiled spring 8′ on the said column with means for adjusting the tension between the said cap and the said column; and a lever 12 fulcrumed on the pin 13 in the said cap or deflector, the short end of which extends within the said slot 11, coacting substantially as described and for the purpose specified.

7. In a spray head, the combination of a nozzle 5 with a suitable centrally-located spider 9 therein; a cap or deflector 6 with a flange 7; a column 8 for supporting the same secured by suitable means to the spider 9, the said column being slotted at 11; a coiled spring 8′ on the said column with means for

adjusting the tension between the said cap and the said column; and a lever 12 fulcrumed on the pin 13 in the said cap or deflector, the short end of which extends within the said slot, coacting substantially as and for the purpose specified.

8. In a spray head, the combination of a nozzle 5; a cap or deflector 6 with a flange 7 having an inner parabolically curved surface arranged to deflect and spread the water discharged from said nozzle; a central column 8 for supporting the same; the said column being slotted at 11; a coiled spring 8′ on the said column for tension between the said cap and the said column; a lever 12 fulcrumed on the pin 13 in the said cap or deflector, the short end of which extends within the said slot 11; a rock shaft 16 with an arm 15; and a turn buckle link 14 between the said rock shaft arm 15 and the long end of the lever 12, coacting substantially as described and for the purpose specified.

9. In a spray head, the combination of the supply pipe 1; a nipple 4 for said supply pipe with suitable means of securing it thereto; a nozzle 5; a cap or deflector 6 with a flange 7 having an inner parabolically curved surface arranged to deflect and spread the water discharged from said nozzle; a column for supporting the same, the said column being slotted at 11; a coiled spring 8′ on the said column for tension between the said cap and the said column; and a lever 12 fulcrumed on the pin 13 in the said cap or deflector, the short end of which extends within the said slot 11, coacting substantially as described and for the purpose specified.

10. In a spray head, the combination of a nozzle 5; a cap or deflector 6 with a flange 7 having an inner parabolically curved surface arranged to deflect and spread the water discharged from said nozzle; a column 8 for supporting the same, the said column being slotted at 11; a coiled spring 8′ on the said column for tension between the said cap and the said column; and a lever 12 fulcrumed on the pin 13 in the said cap or deflector, the short end of which extends within the said slot, coacting substantially as and for the purpose specified.

11. In a spray head, the combination of a nozzle 5; a cap or deflector 6 with a flange 7; a central column 8 for supporting the same, the said column being slotted at 11; a coiled spring 8′ on the said column for tension between the said cap and the said column; a lever 12 fulcrumed on the pin 13 on the said cap or deflector, the short end of which extends within the said slot 11; a rock shaft 16 with an arm 15; and a turn buckle link 14 between the said rock shaft arm 15 and the long end of the lever 12, coacting substantially as described and for the purpose specified.

12. In a spray head, the combination of the supply pipe 1; a nipple 4 for said supply pipe with suitable means of securing it thereto; a nozzle 5; a cap or deflector 6 with a flange 7; a column for supporting the same; the said column being slotted at 11; a coiled spring 8′ on the said column for tension between the said cap and the said column; and a lever 12 fulcrumed on the pin 13 in the said cap or deflector, the short end of which extends within the said slot 11, coacting substantially as described and for the purpose specified.

13. In a spray head, the combination of a nozzle 5; a cap or deflector 6 with a flange 7; a column 8 for supporting the same, the said column being slotted at 11; a coiled spring 8′ on the said column for tension between the said cap and the said column; and a lever 12 fulcrumed on the pin 13 in the said cap or deflector, the short end of which extends within the said slot, coacting substantially as and for the purpose specified.

14. In a spray head, the combination of a nozzle 5; a deflector having an inner parabolically curved surface and extending into a substantially right angled flange, arranged in close proximity to said nozzle to deflect and spread the water discharged from said nozzle; and means for controlling the said cap or deflector, whereby the spray head may be open for flushing, coacting as specified.

15. In a spray head, the combination of a nozzle 5; and a deflector having an inner parabolically curved surface and extending into a substantially right angled flange, arranged in close proximity to said nozzle to deflect and spread the water discharged from said nozzle, coacting as specified.

16. In a spray head, the combination of a nozzle 5; a deflector having an inner parabolically curved surface, and extending into a substantially right angled flange arranged to deflect and spread the water discharged from said nozzle; and means for controlling the said cap or deflector, whereby the spray head may be open for flushing, coacting as specified.

17. In a spray head, the combination of a nozzle 5; and a deflector having an inner parabolically curved surface, and extending into a substantially right angled flange arranged to deflect and spread the water discharged from said nozzle, coacting as specified.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

DANIEL M. LUEHRS. [L. S.]

Witnesses:

WM. S. CONANT,

ALICE MULLEN.