May 6, 1930. A. B. HALE 1,757,628

SPRAY DEVICE

Filed Sept. 27, 1928

Fig. 1.

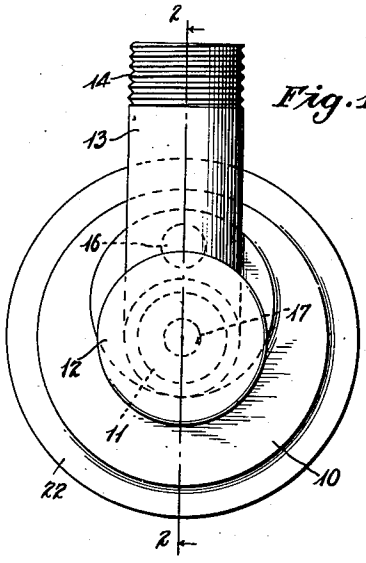


Fig. 3.

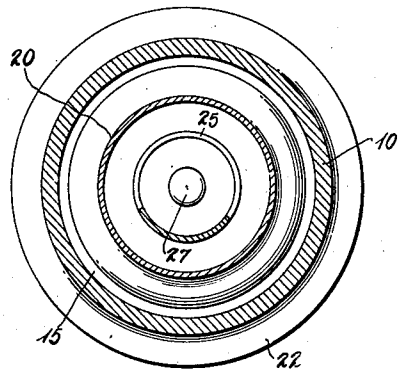
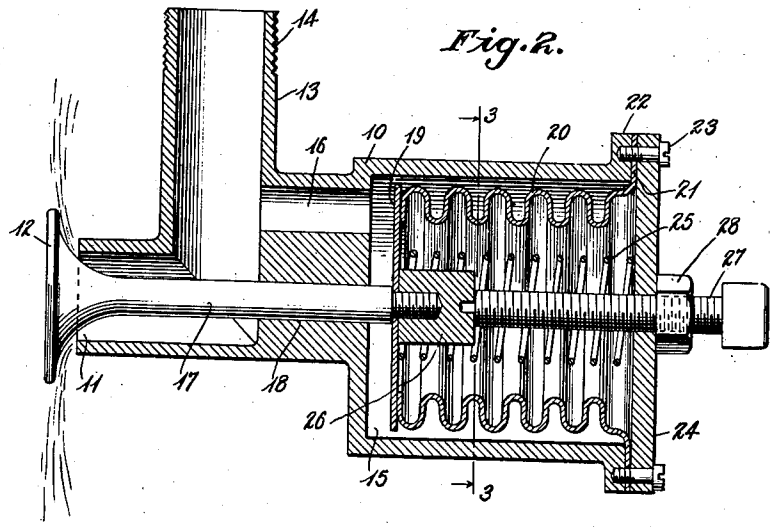


Fig. 2.



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SPRAY DEVICE

Application filed September 27, 1928. Serial No. 308,598.

The invention relates to spray devices and has as an object the provision of a device of this character particularly adapted to use in humidifying apparatus.

It is an object of the invention to provide a device of this character in which the spray orifice is controlled by fluid pressure.

It is a further object of the invention to provide a device of this character in which the spray orifice may be readily cleaned by interrupting and again renewing the supply of liquid, as water, to the spray.

It is a further object of the invention to provide a device of this character in which the spray orifice is readily adjustable.

Further objects of the invention will appear from the following description when read in connection with the accompanying drawings showing an illustrative embodiment of the invention, and wherein:—

Fig. 1 is an end view;

Fig. 2 is a vertical longitudinal section on line 2—2 of Fig. 1; and

Fig. 3 is a vertical transverse section on line 3—3 of Fig. 2.

As shown the device comprises a casing 10 having a spray orifice 11 leading therefrom under control of a spray head 12.

To conduct liquid, as water, to the device, there is shown a conduit 13 exteriorly screw threaded at 14 for connection with a supply pipe. To control action of the spray head 12, there is shown a chamber 15 in the casing 10 communicating with the conduit 13 as by means of a passage 16. The spray head 12 is shown as carried by a stem 17 slidably mounted in a bearing 18 in the casing and having secured thereon a disc 19 acting as a piston to receive pressure through the passage 16, the disc 19 being shown as rigidly connected to a bellows arrangement 20 preferably of a thin metal wall having its margin flanged at 21 and overlapping an annular flange 22 upon the casing and being secured thereagainst by means of cap screws 23 passing through a cover plate 24.

To hold the spray head 12 in its outward position with relation to the orifice 11 in the absence of pressure in conduit 13, there is shown a spring 25 acting in compression between the disc 19 and the cover plate 24. A nut 26 is shown in screw threaded engagement with the stem 17 securing the disc 19 thereupon.

To adjust the minimum spacing between the head 12 and the orifice 11 when pressure is present in conduit 13, there is shown a screw threaded stem 27 bearing against the nut 26, having screw threaded engagement with cover plate 24, and provided with a lock nut 28 abutting against the cover plate 24.

In use, normal pressure within conduit 13 and chamber 15 will overcome the spring 25 whereby the opening of the orifice will be restricted to its minimum adjusted position and a spray of desired fineness will issue from the orifice 11. Should the orifice become stopped by sediment gathered in the orifice the pressure in the chamber may be reduced by cutting off supply of liquid to conduit 13 whereupon the spring 25 will force the head away from the orifice to full open position thus flushing the orifice by flow of liquid under the remains of pressure. When supply of liquid is slowly restored the orifice will be further flushed by at first flowing through the relatively unrestricted orifice before the internal pressure is again sufficient to overcome spring 25.

Minor changes may be made in the physical embodiment of the invention within the scope of the appended claims without departing from the spirit thereof.

I claim:

1. A spray device comprising in combination, a spray orifice, a spray head slidably positioned therein, a piston rigidly secured to said spray head, means whereby increase of pressure within said device may act upon said piston to draw said head toward said orifice, and means to prevent the complete closure of the orifice by said head.

2. A spray device comprising in combination, a casing provided with a chamber and a spray orifice, a spray head slidably positioned in front of said orifice, a conduit for conducting liquid to said spray orifice, a passage between said conduit and said chamber, a piston in said chamber, a rigid connection between said piston and said head, resilient

means pressing said piston in a direction to hold said head in spaced relation to said orifice and means to prevent complete closure of the orifice by said head.

3. A spray device comprising in combination, a casing, a conduit for conducting liquid to said casing, a spray orifice opening from said casing and in communication with said conduit, said casing having a chamber and a passage from said conduit to said chamber, a spray head having a stem slidably mounted in said casing, said head positioned in front of said orifice and movable toward and away therefrom, a disc in said chamber borne by said stem, a bellows secured to said disc and to the base of said chamber, a spring within said bellows for holding said head spaced from said orifice in absence of fluid pressure in said chamber and means to prevent complete closure of the orifice by said head.

4. A spray device comprising, in combination, a casing, a conduit for conducting liquid to the casing, said casing having a spray orifice in communication with said conduit, a spray head for limiting the opening of said orifice, means in said casing responsive to pressure in said conduit for drawing said head toward said orifice to reduce the opening, resilient means to increase the spacing between said head and orifice when pressure is reduced in the conduit and means to limit the movement of the head toward the orifice.

5. A spray device comprising, in combination, a casing, having a chamber and a spray orifice, a conduit for conducting liquid to the casing and orifice, said casing having a passage placing said conduit in communication with said chamber, a closed bellows in said chamber, resilient means for expanding said bellows, a spray head adapted to lessen the opening of said orifice by inward movement, a stem connected to said head and slidably mounted in the casing, said stem extending into said chamber and secured to said bellows, an abutment carried by the casing projecting into said bellows to limit the inward movement of said head and means to adjust the position of said abutment.

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