S. W. CRAMER.
SPRAY NOZZLE FOR HUMIDIFIERS.
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Spray-Nozzle for Humidifiers.


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To all whom it may concern.

Be it known that I, Stuart W. Cramer, a citizen of the United States, residing at Charlotte, in the county of Mecklenburg and State of North Carolina, have invented certain new and useful improvements in Spray-Nozzles for Humidifiers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates primarily to humidifiers for moistening the air in mills, factories and other buildings and has especial reference to an improved water spray nozzle.

The particular form of spray nozzle to which my invention refers, and to which it is applicable, is that consisting of a body member arranged for attaching to a supply pipe, a jet discharge orifice either incorporated directly into the body part or into a detachable member adjustably secured thereto, and a yoke upon which is supported a jet breaking up pin, opposite to and concentrically arranged with reference to the discharge orifice. In all the various modifications of this type of spray nozzle, great difficulty is experienced in preventing the discharge orifice from becoming stopped up with even fine particles of foreign matter. Numerous devices have been tried to accomplish this desirable result; some of them are based upon the principle of screening out the foreign matter with a fine mesh screen, but the most satisfactory consists of a standpipe so arranged with reference to the water supply inlet that particles of foreign matter do not drop directly into the standpipe, but are deposited elsewhere, the water itself having to enter the standpipe through a circuitous route and thence out through the discharge orifice. Heretofore these standpipes have either been made as a part of the integral portion of the body member, or of the detachable member containing the discharge orifice, or have been made separate and screwed into those parts becoming thereby more or less a part of them. Even if the standpipe is detachably secured to the other parts by being screwed thereto, it is obvious upon reflection that when the standpipe is screwed out for cleaning, or otherwise, that foreign particles around it will drop into the orifice and clog it up.

The object of my invention, therefore, is to provide an improved and simpler form of construction whereby not only may foreign particles present in the water supply be prevented from going into the discharge orifice and thereby stopping it up, but also a form of construction whereby these foreign particles are caught and easily and expeditiously removed.

The invention consists in certain improvements which will be fully disclosed in the following specification and claims.

In the accompanying drawings, which form part of this specification.—Figure 1 represents the complete nozzle in working position, partly in elevation and partly in section. Fig. 2 represents a cross section of the body member, on line A—B, Fig. 1. Fig. 3 represents a perspective of the body member, detached. Fig. 4 represents a perspective of the detachable member containing the discharge orifice and the jet breaking up pin, and also showing the chamber in the neck for receiving the standpipe and into which the body member is screwed, and Fig. 5 represents a perspective of the stand pipe with the disk on its lower end detached.

Reference being had to the drawings and the designating characters thereon, the numeral 1 indicates the body member.

2 is the water inlet to the body member into which the supply pipe (not shown) is screwed.

3 is a shield inside the body member, so that the water entering will be diverted through passages 4 toward the wall of the body member.

5 is a recess in the lower side of the shield 3, into which the standpipe 6 projects.

7 is a passage extending longitudinally through the standpipe and through which water is admitted from the body member 1 to the discharge orifice 8. The discharge orifice 8 is formed on a detachable member or yoke 9, which also supports a pillar or pin 10 which is a jet breaking up pin 11 adjacent to and opposite the orifice 8. The upper portion of neck 9 of this detachable member is provided with a chamber 12, into which the lower threaded end 2' of the body member 1 is screwed, and also furnishes a seat 13 for the lower end of the standpipe 6, which terminates in a flat disk like portion 14. Below the disk 14 is a conical recess 15 in which any impurities in the water coming through the passage 7 accumulate. It is obvious that the same results could be ob-
tain by making this disk of other shape than flat, although the flat disk is the preferred form.

The body member 1 is screwed to a supply pipe, not shown. In order to clean the nozzle, the detachable member 9 is merely unscrewed from the body member 1, carrying away with it the standpipe 6 resting on the seat 13. The standpipe is then lifted out of the chamber 12, carrying with it on its disk like portion 14 any foreign matter or sediment that has been deposited there; it is then but the work of a moment to blow this sediment off the disk 14, and off the smooth recessed portion 15 of the detachable member 9, when replacing the standpipe 6 in the chamber 12 of the detachable member 9 and screwing it back on to the body member 1 restores the nozzle to working condition.

That the standpipe effectually separates heavy or coarse particles of foreign matter is quite clear, because the water entering the body member 1 is guided to one side of the opening 7 in the standpipe 6, the velocity of the water in the body member is comparatively slow so that settling takes place and the water rises and enters the upper end of the opening or passage 7 through the standpipe and thence passes down into and through the discharge orifice 8 and is projected against the pin 11 and separated into spray.

It is obvious that modifications and variations can be made in this style of construction without departing from the spirit of my invention.

Having thus fully described my invention, what I claim is:

1. In a spray-nozzle, a member adapted to be secured to a water supply-pipe, a detachable member provided with a discharge orifice, and a stand-pipe extending up into the first member and removable therefrom through the lower end thereof.

2. In a spray-nozzle, a member adapted to be secured to a water supply-pipe, a detachable member provided with a discharge orifice, and a stand-pipe extending up into the first member and having a disk at the lower end thereof and above said discharge orifice, said stand-pipe and disk being removable from the first member through the lower end thereof.

3. In a spray-nozzle, a body member, a member detachably secured to said body member and provided with a discharge orifice, and a stand-pipe through which water is supplied to said orifice, resting upon and removable with said latter member.

4. In a spray-nozzle, a body member, a member detachably secured to said body member, and provided with a discharge orifice, and a disk for protecting said orifice, resting upon and removable with said latter member.

5. In a spray-nozzle, a body member, a member detachably secured to said body member and having a disk at the lower end thereof. The body member is supplied to said orifice, resting upon and removable with said latter member.

6. In a spray-nozzle, a body member, a member detachably secured to said body member and provided with a discharge orifice, a stand-pipe having a disk at the lower end thereof, and removable with the latter member from the body member.

7. In a spray-nozzle, a body member, a member detachably secured to said body member and provided with a discharge orifice, a chamber above the orifice, and a stand-pipe in said chamber and provided with means for protecting said orifice, resting upon and removable with said latter member.

8. In a spray-nozzle, a body member adapted to be attached to a supply-pipe at one end, a member provided with a discharge orifice and means for breaking up a jet of water, and detachably secured to the opposite end of said body-member, a stand-pipe having a disk at its lower end and removable with the latter member, and a shield above the upper end of said stand-pipe and passing around said shield.

In testimony whereof I affix my signature in presence of two witnesses.

STUART W. CRAMER.

Witnesses:

Wm. B. Hodge,
Jno. C. Watson.