

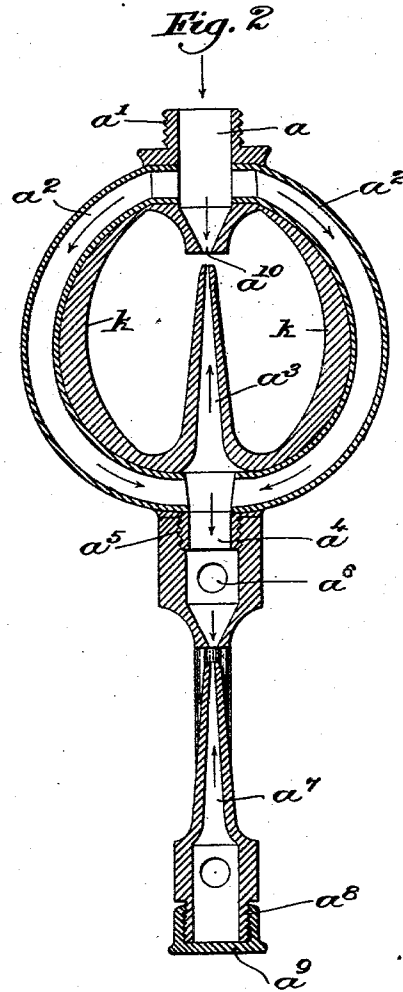
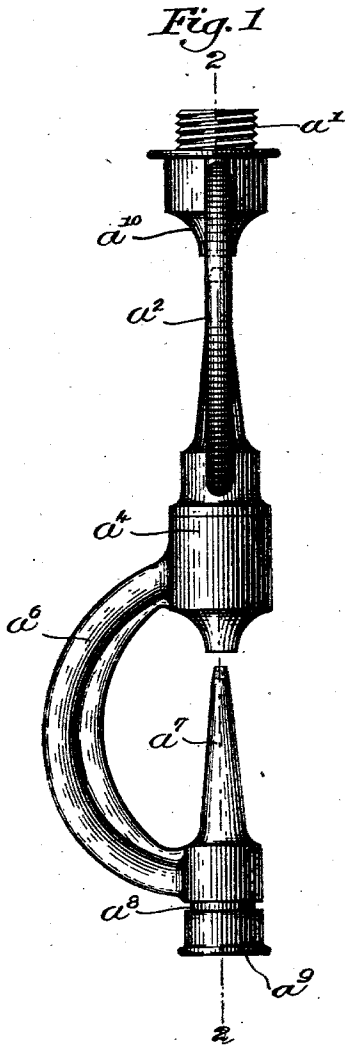
No. 629,181.

Patented July 18, 1899.

R. C. ULBRICH.
HUMIDIFIER.

(Application filed June 10, 1898.)

(No Model.)



Witnesses.

Edward F. Allen.

A. C. Harmon.

Inventor:

Richard C. Ulbrich

by Crosby Gregory.

attys.

UNITED STATES PATENT OFFICE.

RICHARD C. ULBRICH, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO WILLIAM FIRTH, OF SAME PLACE.

HUMIDIFIER.

SPECIFICATION forming part of Letters Patent No. 629,181, dated July 18, 1899.

Application filed June 10, 1898. Serial No. 683,102. (No model.)

To all whom it may concern:

Be it known that I, RICHARD C. ULBRICH, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Humidifiers, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is an improvement in the spray-nozzles for humidifiers used in dampening cloth, paper, &c., and in maintaining proper moisture in the atmosphere of rooms. The object of my present improvement is to provide an apparatus which gives greater uniformity and capacity to the humidifier, so that a larger amount of moisture is developed than from the usual humidifier as heretofore constructed.

In the drawings, Figure 1 is a view in side elevation of one embodiment of my improved nozzle. Fig. 2 is a central vertical section thereof, taken on the line 2 2, Fig. 1.

I have herein omitted showing the casing and other details of the humidifier, inasmuch as these may be of any usual construction, preferably such as shown in my United States Patent No. 572,780, dated December 8, 1896.

The inlet a is threaded at a' to receive any suitable filter, such as commonly used in connection with this kind of apparatus. Two by-passes a^2 are arranged to convey the fluid in opposite directions from the inlet a and deliver it at their lower ends to a central spraying device a^3 and to the inlet a^4 of a secondary nozzle secured to a nipple a^5 at the lower end of the converging ends of the by-passes. The lower nozzle is provided with a by-pass a^6 similar to the by-pass a^2 , which conveys the fluid to a spraying device a^7 similar to the cone a^3 , this secondary spraying device also preferably having a threaded nipple at a^8 , capable of receiving, if desired, a third spraying device, but herein shown as closed by a cap a^9 .

From the above description it will be understood that the water is forced under pressure from the inlet a , escaping therefrom at the orifice a^{10} , where it strikes on the pointed end of the cone a^3 , being thereby sprayed in usual manner, the spraying effect being increased by the counterblast driven from the passage

of the spraying device a^3 against the spray from the orifice a^{10} . The result is that a cone-shaped sheet of spray is formed, cut in usual manner by the knife-edges k , which impinges against the walls of the humidifier and is broken up thereby into a finely-comminuted cloud of mist. The same effect takes place in the lower and in succeeding nozzle or nozzles, the successive sheets of spray being delivered from the successive nozzles in substantial parallism and striking the walls of the casing at points below each other, thereby producing a greatly-increased saturation and output from the humidifier. It will be observed, furthermore, that the lower or secondary nozzle is turned at right angles to the upper one, the object being to render the spray of the water uniform, inasmuch as the spray from the lower nozzle will fill up the gaps in the upper spray made by the deflection thereof due to the edges k .

I provide two by-passes a^2 in the upper device in order that there may be sufficient pressure for the lower one, it being understood that part of the water from the outlet ends of these by-passes goes upwardly and part goes downwardly and that, if desired, one by-pass may deliver its fluid to the device a^3 and the other to the inlet a^4 , although I prefer that they should both deliver partly to the sprayer a^3 and partly to the inlet a^4 , and also the meeting of these two streams at the converging ends of the by-passes improves the spraying effects.

While I have herein shown one complete embodiment of my invention, it will be understood that I am not limited thereto, but that this is merely a preferred form, and that various changes and modifications in details may be resorted to within the spirit and scope of my invention. The cap a^9 , being readily removable, affords opportunity for readily cleaning out the nozzle, and it will also be understood that when the upper nozzle is used without the lower one the cap a^9 is screwed on the nipple a^5 .

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

1. The herein-described humidifier-nozzle, comprising an inlet having a discharge-ori-

5 fice, opposite by-passes leading from said inlet adjacent said orifice, a spraying device terminating adjacent said orifice and having a discharge-passage connecting at its lower
10 end with said by-passes, in combination with a secondary nozzle having its inlet-passage centrally connected to said by-passes at their lower ends, and provided with a discharge-orifice, a spraying device opposite thereto,
15 and a by-pass connecting said inlet with said spraying device, substantially as described.

2. The herein-described humidifier-nozzle, comprising a plurality of discharge-orifices, one above the other, a spraying device opposite each discharge-orifice having a discharge-passage therethrough, an inlet for the water

adjacent one of the discharge-orifices, and continuous by-pass connections from said inlet to the remaining discharge orifice or orifices and to said spraying devices for the supply of water thereto, the respective by-pass connections of successive spraying devices lying in planes at right angles to each other, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RICHARD C. ULBRICH.

Witnesses:

GEO. H. MAXWELL,
GEO. W. GREGORY.