No. 656,902. Patented Aug. 28, 1900.

W. W. MOORE & R. D. JONES.

HUMIDIFIER.

(No Model.) (Application filed May 28, 1900.)

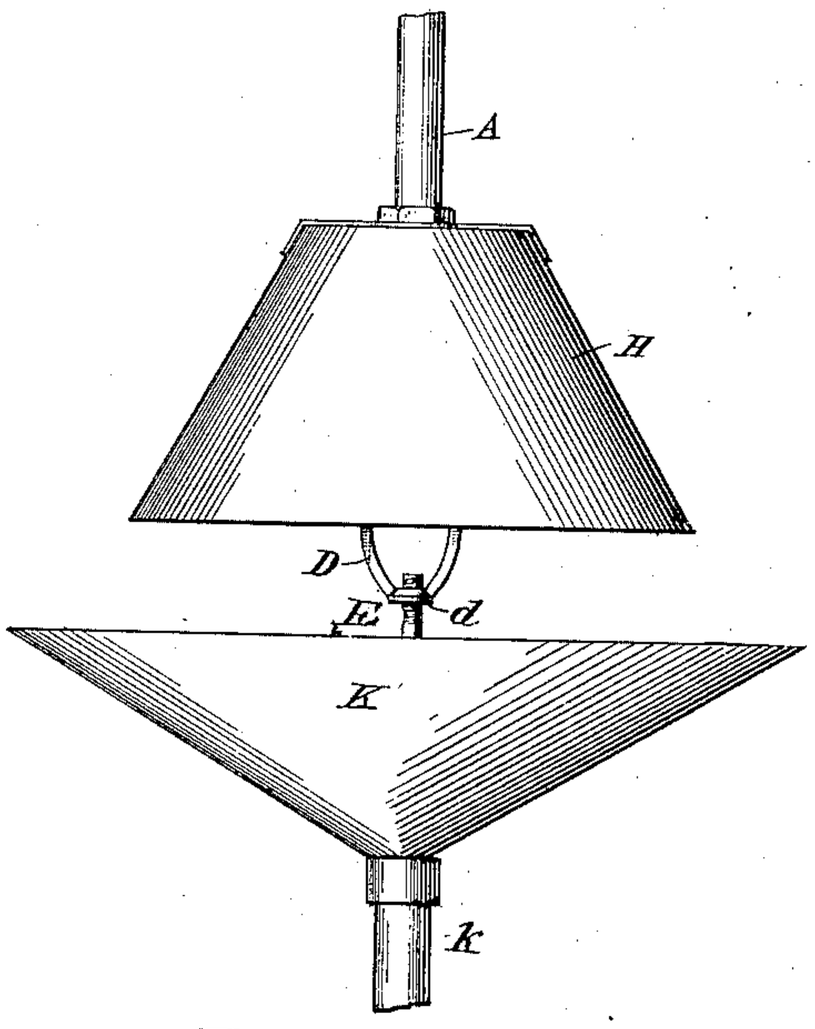

Fig. 1.

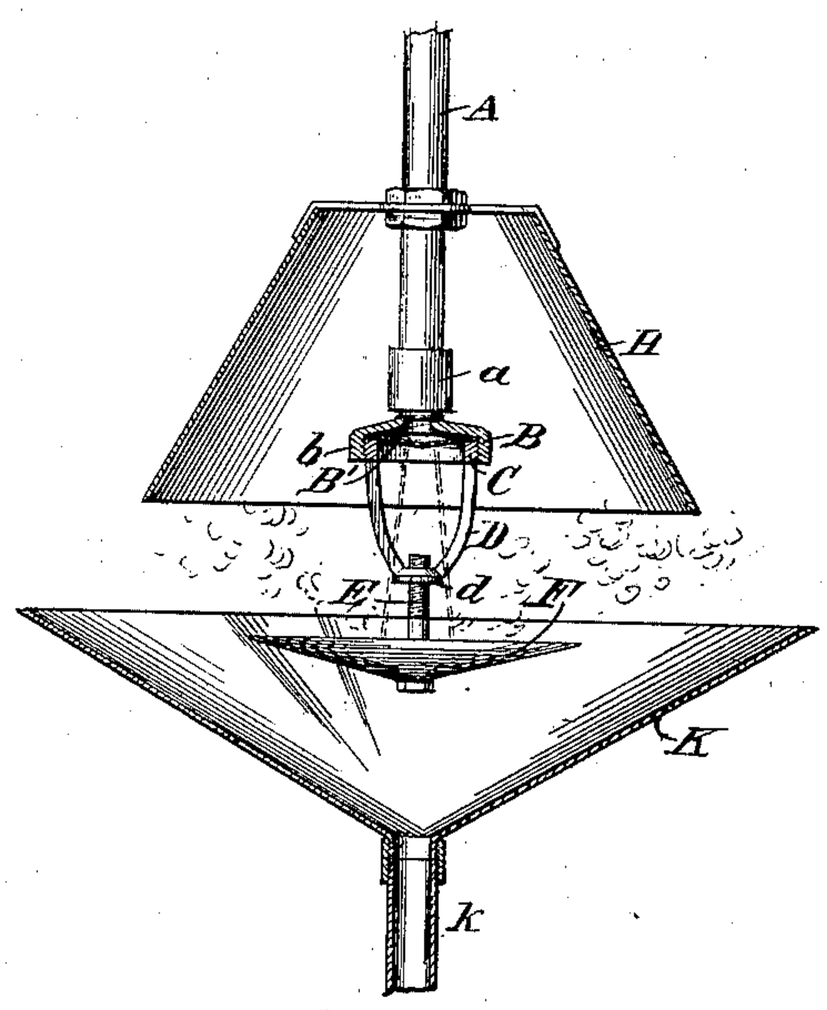

Fig. 2.

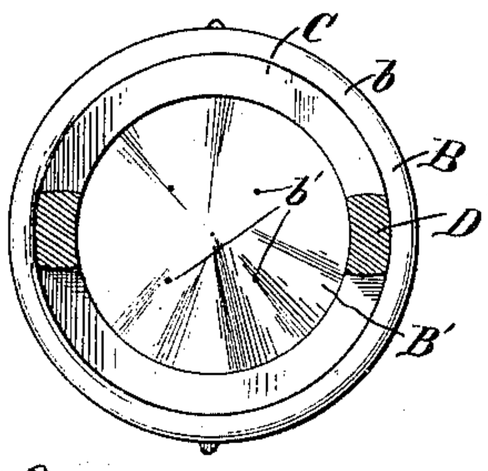

Fig. 3.

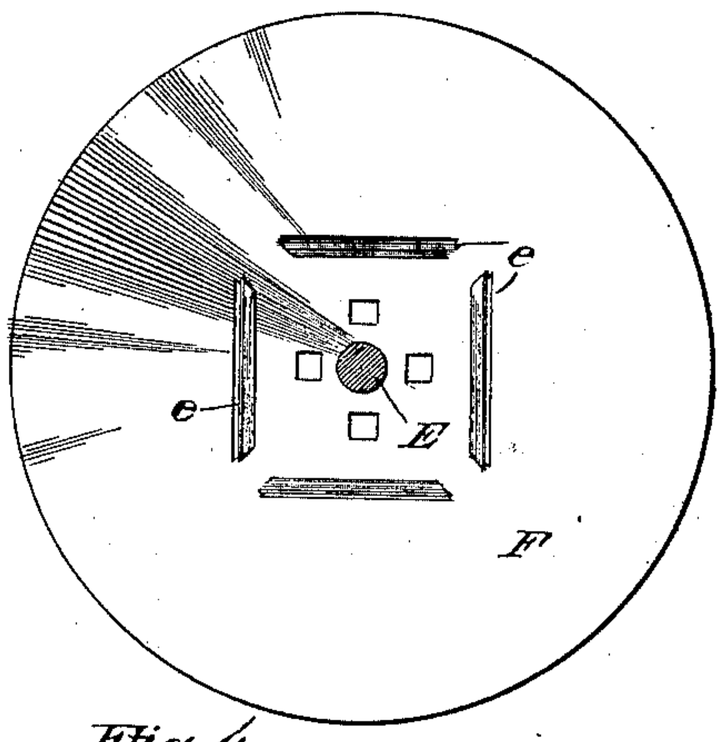

Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM W. MOORE AND ROBERT D. JONES, OF ROCK HILL, SOUTH CAROLINA, ASSIGNORS TO JOHN R. BARRON, OF SAME PLACE.

HUMIDIFIER.

SPECIFICATION forming part of Letters Patent No. 656,902, dated August 28, 1900.

Application filed May 28, 1900. Serial No. 18,249. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM W. MOORE and ROBERT D. JONES, citizens of the United States, residing at Rock Hill, in the county of York and State of South Carolina, have invented certain new and useful Improvements in Humidifiers; and we 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.

This invention relates to an improvement in humidifiers or air-moistening devices. Such devices are largely used in factories and mills and serve to "temper" or moisten the air. Heretofore many devices for that purpose have been suggested, the more general type being in the form of a spraying-nozzle having a breaking-surface in close proximity, against which the water impinges and is broken up into fine particles. They have also usually been provided with cylindrical hoods or casings, used, primarily, for intercepting the transverse movement of the water as it leaves the breaker and to also form a flue for assisting in establishing and maintaining a free circulation of air. In all such structures the escaping water as it leaves the casing largely interferes with the circulation of air. To remedy this defect, gutters have been placed at the base of the casing in which the surplus water is collected. Such, however, interferes with full free circulation of the air and the full effect of the atomized water is lost. Our invention comprehends a structure wherein the full atomizing effect is acquired thereby more rapidly and thoroughly tempering the air than heretofore.

With this end in view the invention comprises a device wherein the spraying or atomizing is carried on below the casing and directed in an outward and conveniently, but not necessarily, an upward direction.

The invention also consists in the construction and arrangement of parts presently to be described and defined in the claims; but we desire it understood that various modifications can be made without departing from the nature and principle of the invention.

In the accompanying drawings, Figure 1 is a side elevation. Fig. 2 is a vertical section. Fig. 3 is a detail of the nozzle member, and Fig. 4 is a detail view of the breaker-plate.

A designates the supply-pipe, having a threaded coupling *a* on its end, and B designates the nozzle member, consisting of a head formed of a hollow casting, having a depending flange *b* threaded interiorly and having a flat internal marginal seat, against which the removable spraying-disk B′ rests. The disk is in the form of a shallow cone and has a plurality of small perforations *b′* in its sloping sides, conveniently four in number, spaced an equidistance apart. These perforations are shown on an enlarged scale, but in practice they are quite minute, so that the streams issuing therethrough will be about the size of a thread, being thereby more easily and quickly dissipated and atomized. To retain the spray-disk removably in place, a ring C is employed, having a threaded exterior meshing with the thread of the head, as shown in Fig. 2. Depending from the ring C is a yoke D, having at its center, in a line between the perforations of the disk, a threaded collar *d*, in which is secured a rod E, which latter has a threaded upper end engaging and adjustably secured in the collar. On the lower end of the rod E is the dissipating or breaking disk F, the same being conveniently flat and circular in shape. At points in line with the perforations in the disk are deflecting-lips *e*, struck up from the metal of the plate and of oblong shape. They are inclined obliquely upward, as shown.

H designates the hood, which is open at top and bottom and is secured in any convenient manner to the pipe A. This hood projects down to a point about the plane of the yoke and is conveniently conical in shape.

K designates the drip-pan, the outer edges approximating the plane of the breaker-disk. This pan is conveniently supported by the drain-pipe *k* or in any other suitable manner.

When the device is working, the small jets will be directed at a slight angle, owing to the inclination of the perforations in the sloping sides of the disk. The streams are projected a considerable distance downward, serving in a measure to thereby create a circulation of air through the hood. They then impinge against the breaker-plate at or near

the base of the oblique flanges, at which points the streams are broken up and the vapor carried out between the edges of the hood and drip-pan. Owing to the conical formation of the hood a free circulation is permitted, and at the same time it acts as a deflector for drops or large particles of water which occasionally may be projected upward. In practice the conical hood has been found eminently satisfactory. By having the breaker-plate adjustably secured to the yoke its distance from the nozzle can be varied.

An important feature is the removability of the spray-disk, and so because it can be readily removed for cleansing purposes or to adjust the position of the holes relative to the deflectors on the breaker-plate.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a humidifier, the combination with a supply-pipe, of a nozzle member consisting of a hollow head, and a removable perforated disk, a breaking-plate below having upwardly and outwardly inclined deflecting-flanges, a hood and a drip-pan, substantially as described.

2. In a humidifier, the combination with a supply-pipe, of a spraying-nozzle thereon, a breaking-plate below the nozzle and carried by and adjustably connected to the pipe, a hood having its edges above the plane of the plate, and a drip-pan below the plate, substantially as described.

3. In a humidifier, the combination with a pipe, of a head therein, a conical disk removably secured in the head, and having a series of perforations therein, a breaker-plate adjustably secured to and located below the head, a hood above the plate, and a drip-pan below the same, substantially as described.

4. In a humidifier, the combination with a head, of a concavo-convexed perforated plate removably secured in the head, a hood, a breaking-plate having a series of inclined flanges struck up therefrom and arranged in line with the apertures in the plate, and a drip-pan, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM W. MOORE.
ROBERT D. JONES.

Witnesses:
J. E. REID,
W. E. SHURBUTT.