

(No Model.)

J. BEGGS.

ATOMIZER.

No. 256,621.

Patented Apr. 18, 1882.

Fig. 1.

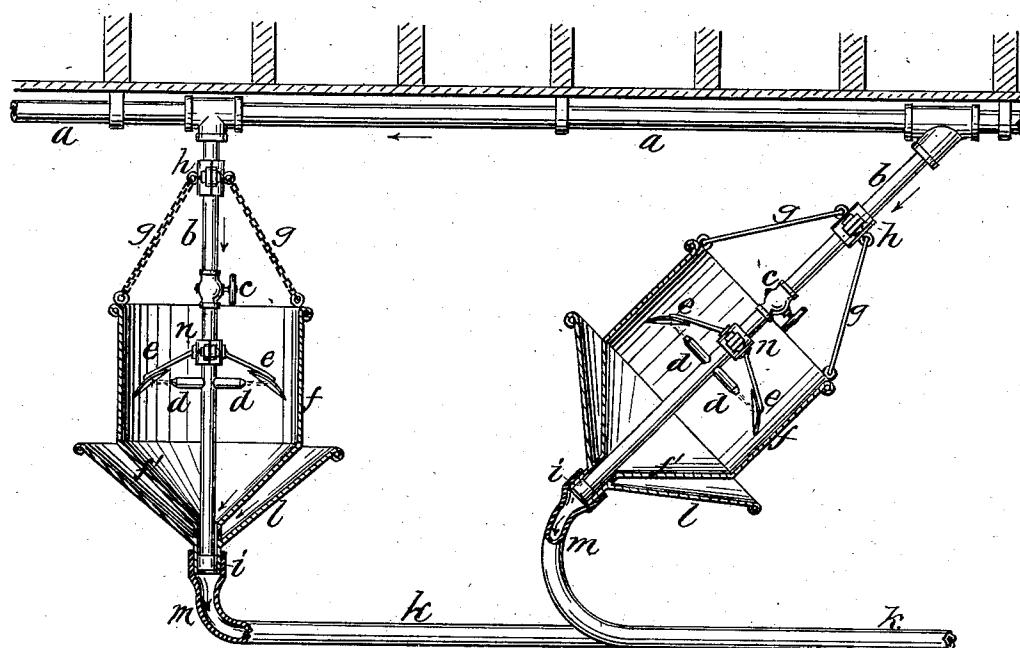


Fig. 2.

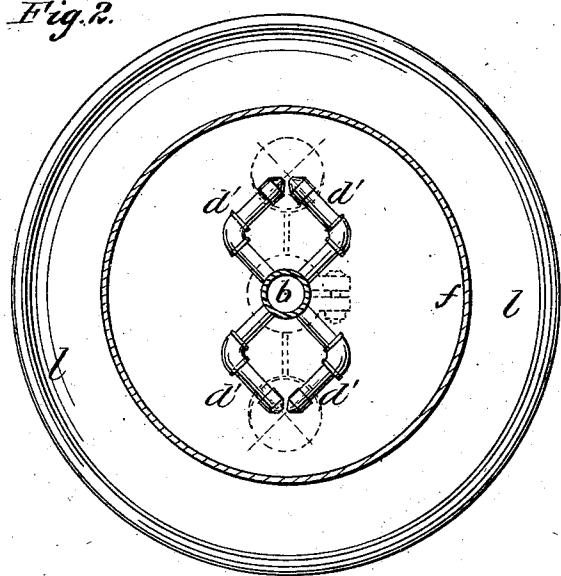
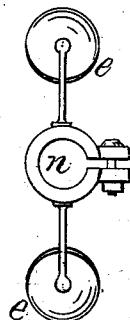


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES BEGGS, OF PATERSON, NEW JERSEY.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 256,621, dated April 18, 1882.

Application filed March 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES BEGGS, of Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Air Moisteners or Atomizers, of which the following is a specification.

My invention has more special relation to that class of water sprayers or atomizers adapted to produce an exceedingly fine watery spray or mist for the purpose of moistening the air in factories where silk or other textile fibers are spun, in order to render the fibers more soft and flexible and less liable to break in spinning. For this purpose it is quite important that the spray or mist be of such impalpable fineness as will immediately become dissipated by evaporation or absorption in the air, without presenting any sensible particles which would settle in the form of wet drops, even of point-like fineness.

In a former patent, issued to me September 20, 1881, No. 247,151, I have shown a moistening or atomizing jet of novel construction specially adapted for producing a mist or spray for the described purpose, and of such exceeding fineness as to be almost entirely free from any particles of palpable size. It happens, however, occasionally in the operation of this jet that a few sensible watery particles will be discharged with the impalpable misty particles, which sensible particles are caused, presumably, by the aggregation of a number of the impalpable particles or by some irregularity in the action of the jet—such as a momentary clog of the jet-holes by particles of dirt—while in common atomizing-jets such sensible particles are quite numerous and frequent.

Now, the object of my present improvement is to arrest all particles of palpable size and prevent their deposition and allow only the fine impalpable particles or mist to become discharged or diffused into the air; and to this end the main feature of my invention consists in the combination, with an atomizing-jet, of a case surrounding the same, closed at the bottom and open at the top or sides, adapted to arrest all sensible particles, while allowing the fine impalpable particles of mist to rise and diffuse freely into the air, thereby moistening

the air effectually and avoiding the possibility of producing any deposit of wet.

Another feature of the invention consists in the combination, with the atomizing-jet and its inclosing-case, of a deflector placed over the jet within the case to serve to more minutely divide the spray, as well as prevent the rise or discharge of any sensible particles out of the case.

The invention also embodies several minor features, as hereinafter fully set forth.

Figure 1 of the annexed drawings presents a sectional elevation of my improved moistening apparatus, showing two moisteners; and Fig. 2, a plan view of one of the moisteners with the deflectors removed, while Fig. 3 gives a plan view of the removed deflectors.

In Fig. 1 *a* indicates the water-supply pipe, which may extend, for instance, along the ceiling of the spinning-room or other apartment in which a moist atmosphere is required. This pipe will of course be suitably fastened in place and connected with an elevated reservoir of water, or with street-mains, or with a force-pump or other source which will supply it with water under pressure, as will be understood. From the supply-pipe *a* branches *b* extend at suitable intervals, which are provided with regulating-valves *c* and jets *d*, from which minute atomizing-jets of water may be discharged under high pressure when the valves *c* are opened. These jets may be constructed in a simple way, as represented in Fig. 1, so as to discharge simply a very fine stream of water, which, being projected against dispersing-plates or reflectors *e*, placed over and before the jets, will cause the fine stream to be broken up into a fine spray or mist. In this case, however, a very large part of the spray or mist would consist of sensible particles, which would rapidly settle to the floor in the form of a wet deposit, and a portion of impalpable particles or fog, which would readily diffuse into the air.

Now, in order to allow only the fine fog to diffuse into the air and arrest the drops, I surround or inclose the jets and deflectors with the casing *f*, which preferably extends well above and below the jets, as shown, but is closed or covered at the bottom and open at

the top. By this means it will therefore be readily seen that all the fine impalpable watery particles or mist will readily float up out of the case and diffuse in all directions into the air, while the palpable particles or fine drops will fall to the bottom of the case. Now, from the bottom of the case a discharge-neck, *i*, extends and connects with a small piece of rubber tubing, *m*, which communicates with a waste-pipe, *k*, so that all the watery drops falling to the bottom of the case have free chance to trickle out or flow away as fast as they are produced without accumulating in the case, as will be understood.

15 The casing *f* is preferably a sheet-metal cylinder with a conical bottom, as shown, and is preferably suspended at the top by chains or wires *g* from an adjustable clasping-sleeve, *h*, which is clamped upon the branch pipe *b*, 20 and may thus be adjusted up or down, so as to set the casing higher or lower with reference to the jets. The deflectors *e* also extend from a clasping-sleeve, *n*, adjustable up or down on the branch pipe, so that they may also be 25 adjusted up or down with relation to the jets, which adjustment will regulate the volume of mist discharged from the top of the case.

Under the conical bottom of the casing is arranged a larger or secondary cone or catch-basin, *l*, which is secured to the conical bottom of the casing or to the discharge-neck *i*, which basin catches or arrests any condensation which may form on the outside of the casing, and which will trickle into the basin and be thus directed thereby through perforations in the neck *i* into the waste-pipes *m* *k*, as will be understood. It will be readily seen that the discharge of cold watery spray within the casing and the evaporation outside of it will render the casing quite cold, and hence produce a condensation of moisture from the air on its exterior, as just referred to, which, by the means described, is thus conducted off and prevented from dripping to the floor onto the masses of fibers, which may be placed below the moistener.

I prefer to prolong the branch pipes *b* beyond the jet so as to enter the discharge-neck *i* of the casing, and thus serve to steady the casing around the jets and guide the casing in its adjustment up or down on the pipe, the end of the pipe being of course closed or plugged and a loose fit in the discharge neck.

I prefer to arrange the moisteners in true vertical position, as shown at the left of Fig. 1; but they may be arranged at various inclinations, or nearly in a horizontal position, as seen on the right of Fig. 1.

Instead of employing the simple jets shown in Fig. 1, any suitable form of spraying or atomizing jet may be used. I prefer, however, to employ the jet previously patented to me. (Before referred to and shown in Fig. 2.) In this case the jet is duplex or discharges two minute streams of capillary fineness at right angles to each other, or nearly so, which impinge

against each other at a short distance from the orifice of the jet-nozzles *d* *d'*, and thereby become dissipated into the finest possible spray or mist, which consists almost entirely of impalpable particles, which readily float and diffuse in the air and contain only occasional particles of any palpable size, which, however, are arrested by the casing *f* and deflectors *e*, as before described. The deflectors *e* will be placed 75 over my improved jet in about the same position as seen Fig. 1 to deflect all palpable particles downward, as will be understood, the jets not, in this case, impinging on the deflectors.

It is not essential that the casings *f* be connected at the bottom with a waste-pipe, as they may simply serve to receive and accumulate the palpable watery particles until removed; but the construction shown is preferred.

It will be readily understood that where the catch-basin *l* is used below the casing it is not essential that the casing be itself provided with the closed conical bottom *f'*, as this may be dispensed with and the bottom left open, 90 but placed directly over the catch-basin *l* and neck *i*, as shown, which basin will thus cover or underlie the bottom of the casing and form in effect a close bottom therefor to receive and conduct off all the falling drops with substantially the same effect as described for the preferred construction.

What I claim is—

1. In an air-moistener, the combination, with a spraying or atomizing jet, of a casing inclosing the same and adapted to permit the impalpable misty particles to escape and diffuse into the air while arresting or retaining the heavy or palpable particles, substantially as herein set forth.

2. In an air-moistener, the combination, with spraying or atomizing jets, of a casing inclosing the same, covered or closed at the bottom and open at the top, substantially as and for the purpose set forth.

3. The combination, in an air-moistener, with a spraying or atomizing jet, of a casing inclosing the same, covered or closed at the bottom and open at the top, and a waste-pipe or drain connected with the bottom of the casing, substantially as herein set forth.

4. An improved air-moistener formed by the combination of a spraying or atomizing jet, a casing inclosing the jet, closed or covered at the bottom and open at the top, and a deflector placed over the jet within the casing, substantially as herein shown and described.

5. The combination, in an air-moistener, of a spraying or atomizing jet, a casing inclosing the same, and a catch-basin placed under the said casing, substantially as and for the purpose set forth.

6. The combination, with an atomizing or spraying jet, of a casing placed about the same, open at the top, covered at the bottom, and means for adjusting said casing up or down with relation to the jet.

7. In an air-moistener, the combination, with a spraying or atomizing jet, a casing inclosing the same, open at the top or sides, and a deflector placed over the jet within the casing, of 5 means for adjusting the deflector up or down with relation to the jet, substantially as herein set forth.

8. In an air-moistener, the combination, with

the jet-pipe *b*, of the casing *f*, suspenders *g*, and adjustable clasping-sleeve *h*, arranged and operating substantially as and for the purpose set forth.

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