No. 892,778. PATENTED JULY 7, 1908.

H. C. TOWNSEND.

HUMIDIFIER.

APPLICATION FILED AUG. 27, 1907.

Fig. 1.

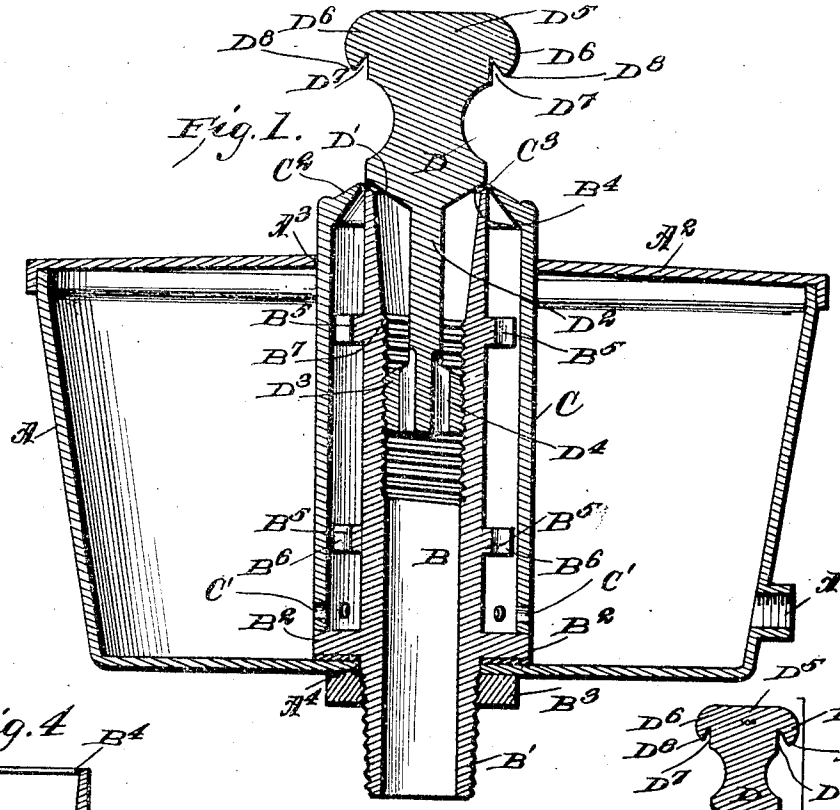


Fig. 4.

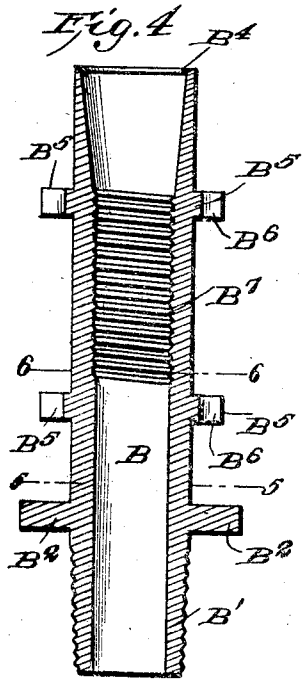


Fig. 2.

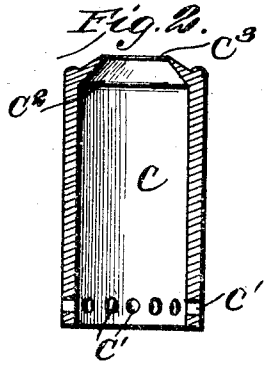


Fig. 3.

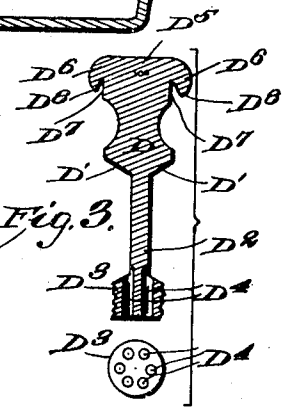


Fig. 6.

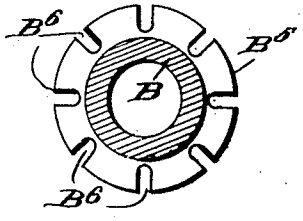
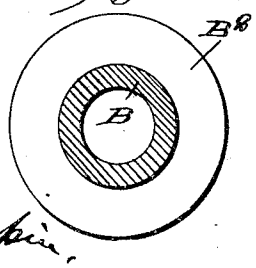


Fig. 5.



WITNESSES

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HUMIDIFIER.

No. 892,778. Specification of Letters Patent. Patented July 7, 1908.

Application filed August 27, 1907. Serial No. 390,269.

To all whom it may concern:

Be it known that I, HENRY CLAUDE TOWNSEND, a citizen of the United States, and a resident of Anderson, in the county of Anderson and State of South Carolina, have invented certain new and useful Improvements in Humidifiers, of which the following is a specification.

This invention is an improvement in humidifiers, such for instance as are used in cotton factories for moistening the air; and the invention consists in certain novel constructions and combinations of parts as will be hereinafter described and claimed.

In the drawing Figure 1 is a vertical section of an apparatus embodying my invention. Fig. 2 is a detail longitudinal section of the cover tube. Fig. 3 illustrates in longitudinal section and bottom plan view the controlling valve. Fig. 4 is a sectional view of the air flue. Fig. 5 is a cross-section thereof on about line 5—5 of Fig. 4, and Fig. 6 is a cross-sectional view on about line 6—6 of Fig. 4.

In the construction shown the humidifier comprises a tank A having an inlet A′ through which water may be supplied from any suitable source of supply, and a float valve or other controlling means may be provided for maintaining the water in the tank A at any predetermined level. The tank A has a cover A^2 with an opening A^3 through which the cover tube presently described projects, and the bottom of the tank A is provided with an opening A^4 through which the nipple B′ at the bottom of the air flue B projects, as shown in Fig. 1. The air flue B is provided with a base plate B^2 which rests upon the bottom of the tank A, and the nipple B′ projects below the base plate B^2 and is threaded externally and a nut B^3 turned on the nipple B′ up against the bottom of the tank A forms a securing means for holding the air flue firmly in position in connection with the tank. Air may be supplied under any degree of compression by suitable connections with the nipple B′ from any suitable source of supply and passes upwardly in the operation of the humidifier and discharges from the air flue at the upper end thereof where a seat B^4 is provided for seating the valve presently described.

The air flue B is provided on its outer side with spacing projections B^5, which properly space the cover tube C away from the air flue, and these spacing projections B^5 are channeled at B^6 for the passage of water upwardly in the space between the air flue and the cover tube in the operation of the invention.

The air flue B is threaded internally at B^7 and the controlling valve D has its valve proper D′ arranged to seat against the seat B^4 and is also provided with the depending portion D^2 having at its lower end a plug D^3 threaded within the air flue and channeled at D^4 to permit the passage of air past the said plug in the operation of the invention. By this construction the valve D can be adjusted toward and from its seat to regulate the discharge of air, as will be understood from Fig. 1 of the drawing.

The valve D, has at its upper end a handle D^5 with laterally projecting portions D^6 which are notched in their lower edges at D^7 to receive the sharp edge produced at the upper end of the cover tube C in raising the said cover tube so the handle will strike at D^8 against the outer side of the cover tube C before the knife edge thereof abuts the handle portion, thus limiting the upward movement of the cover tube without injuring the spraying edge thereof.

The cover tube C rests at its lower end upon the base plate B^2 of the cover tube and fits over the air flue B and around the spacing projections B^5 thereon and this cover tube has openings C′ shown at its lower end for the passage of water from the tank into the space between the cover tube and the air flue, which water may pass upwardly in said space and be discharged in the form of spray, as indicated in Fig. 1.

At its upper end the cover tube is deflected inwardly at C^2 and its knife edge C^3 rests comparatively close to the upper end of the air flue B, a narrow annular spraying space being provided between the said parts, as will be understood from Fig. 1 of the drawing. This provision of a narrow annular spraying space brings the air in contact with the water in a thin sheet, as distinguished from a pin point and this is important in obviating the clogging of the spraying discharge by lint and the like and also facilitates the clearing or displacing of any accumulated lint by simply lifting the cover tube in the operation more fully described hereinafter.

The cover tube it will be noticed operates as a means for subjecting a limited quantity

of water in the tank to the action of the air blast through the flue B and in operation the valve D may be adjusted to regulate the amount of moisture to be discharged into a room as the more air applied the greater the amount of spray discharged, the discharging air tending to produce a vacuum at the spraying space and draw the water up to discharge the same in the form of spray in the operation of the invention.

The cover A^2 serves to keep lint, dust and the like out of the tank.

As shown the cover tube C may be moved longitudinally upward from the position shown in Fig. 1, which is important as by raising the said cover tube above the spraying position shown in Fig. 1, the opening between said tube and the air flue will be so large that the air from the air flue will blow out all trash or lint and this lifting of the cover tube is all that is necessary to clean the humidifier shown while with the devices for this purpose in common use it is necessary to pick lint out with small pins or other suitable devices.

The construction is simple, easily operated, can be cheaply made, possesses no parts apt to get out of order and will efficiently serve the purpose for which it is designed.

What I claim is:

1. A humidifier comprising a tank having an opening in its bottom, an air flue having a base plate and a nipple below the same and projecting through the opening in the bottom of the tank, securing means on said nipple below the tank, the air flue being provided above its base plate with projecting portions channeled for the passage of water and adapted to form a spacing device for the cover tube, a cover tube fitted over the air flue and over the spacing projections thereof and resting at its lower end on the base plate of the air flue and spaced at its upper end from the upper end of the air flue forming a spraying space, and a valve controlling said space and held adjustably within the air flue, openings being afforded for admission of water to the cover tube.

2. A humidifier comprising an air flue having internal threads, a cover tube over the air flue, a spraying space being provided between the air flue and the cover tube at the discharge end of the latter, and a valve having a valve proper controlling the discharge of air and a depending stem having a threaded plug screwing into the internal threads of the air flue, and channeled for the passage of air.

3. A humidifier having an air flue provided at its outer side with spacing projections channeled for the passage of water, a cover tube over the air flue and spaced apart therefrom by the channeled projections of the air flue, and a spraying space being provided between the air flue and the cover tube at the discharge end of the latter, and a controlling valve carried by the air flue.

4. A humidifier comprising a tank, an air flue projecting upwardly through the tank, and means for subjecting a limited quantity of water in the tank to the action of the air blast through said flue.

5. A humidifier having an air flue, a cover tube fitting over the same and movable longitudinally relative to said flue, a spraying space being provided between the flue and tube, and a controlling valve.

6. A humidifier having an air flue, and a cover fitting over the same, a spraying space being provided between the flue and the cover, the said cover being movable longitudinally relatively to the air flue whereby to free or displace lint.

7. The combination in a humidifier with an air flue, and a valve having a threaded plug screwing within the air flue, and a handle above the air flue and having laterally projecting portions, and a cover tube movable longitudinally upon the air flue and stopped in its upward movement by the handle portion of the valve.

8. A humidifier having an air flue and a cover tube over the air flue and movable longitudinally from spraying position whereby it may be operated to free or displace lint.

9. A humidifier comprising an air flue, a cover tube surrounding and spaced apart from the air flue forming a channel for water, a spraying space being provided between the said flue and tube at the discharge end thereof, and a valve controlling the discharge of air.

10. A humidifier having an air flue, and means coöperating with the discharge of said flue forming a contracted water discharge space whereby water in the form of a thin sheet may be subjected to the action of the air discharged through said flue.

11. In a humidifier, the combination with an air flue and a cover tube over the same and forming a passage for water, of a valve controlling the discharge of air and having a depending portion adjustable within the air flue.

12. A humidifier comprising a tank for water, an air flue projecting upwardly through the same, a cover tube over the air flue and communicating with the interior of the tank, and a controlling valve.

13. In a humidifier, the combination of an air flue, a valve having a handle above the air flue with laterally projecting portions and notched in their lower edges, and a cover tube movable longitudinally upon the air flue and projecting into the notched portions of the handle.

14. A humidifier comprising an air flue, means fitting over the air flue, an annular spraying space being provided between said

means and flue, and a valve controlling said space whereby to regulate the discharge of the humidifier.

15. A humidifier, comprising an air flue and a device alongside the discharge end of said flue and forming in connection therewith an elongated contracted water discharge space whereby the water supplied to the humidifier may be subjected in the form of a thin sheet to the action of the vaporizing air.

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