

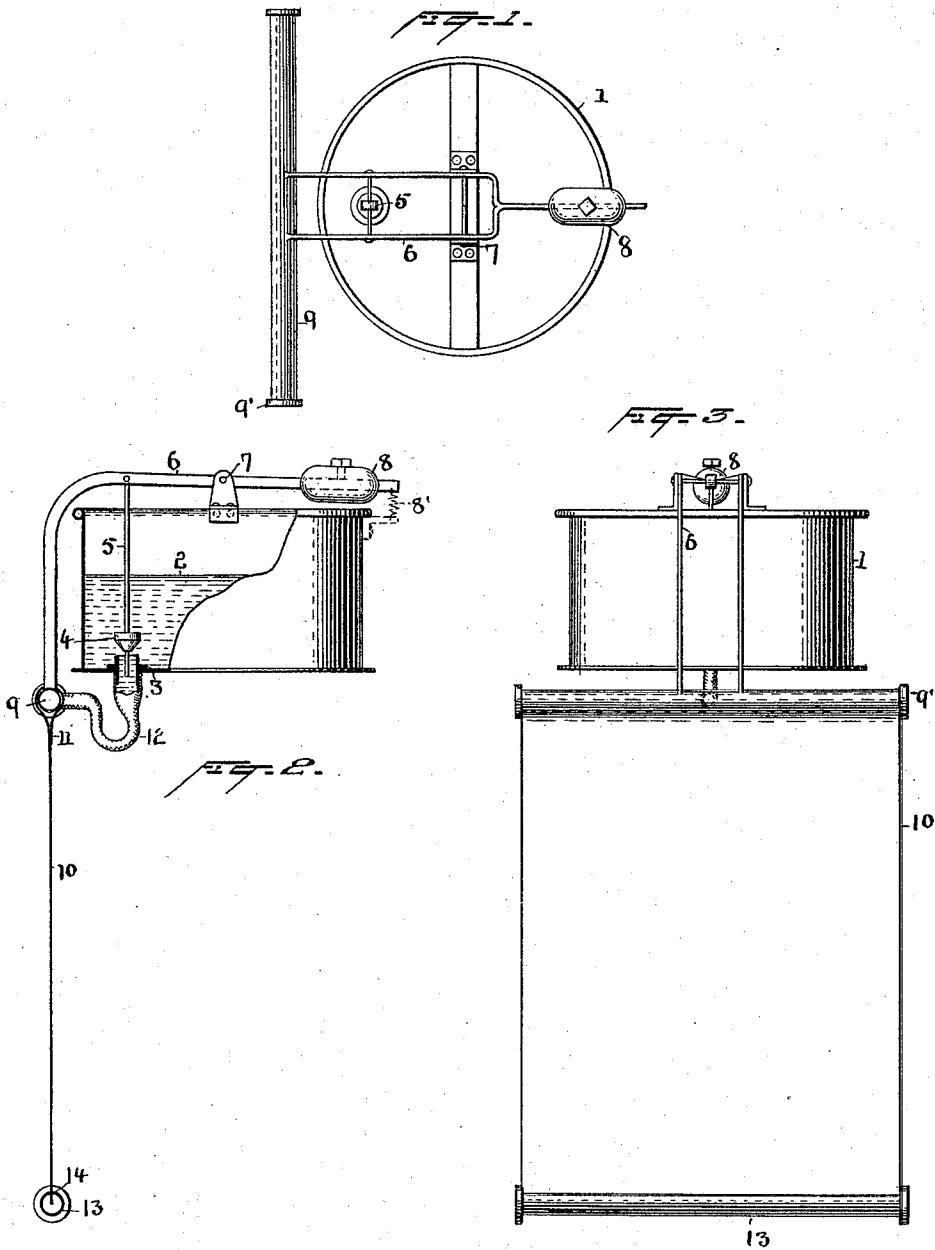
(No Model.)

2 Sheets—Sheet 1.

E. W. FRAZAR & F. THUMAN.
DEVICE FOR MOISTENING AIR.

No. 470,424.

Patented Mar. 8, 1892.



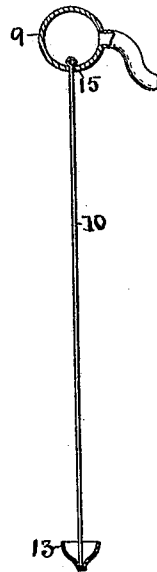
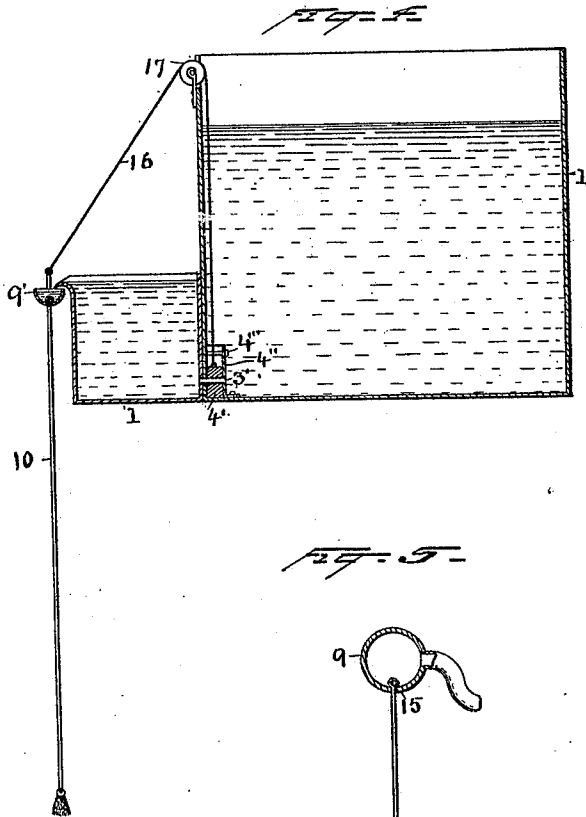
Witnesses
Norris A. Clark.
W. F. Oberly

Ernest W. Frazer Inventors
Frederic Thuman
By their Attorneys
Lyert Sully

E. W. FRAZAR & F. THUMAN.
DEVICE FOR MOISTENING AIR.

424.

Patented Mar. 8, 1892.



Witnesses
Horris A. Clark.
W. F. Oberly

Ernest W. Frazer Inventors
Frederic Thuman
By their Attorneys
Lyert Seely.

UNITED STATES PATENT OFFICE.

EVERETT W. FRAZAR, OF ORANGE, NEW JERSEY, AND FREDERIC THUMAN,
OF CHICAGO, ILLINOIS.

DEVICE FOR MOISTENING AIR.

SPECIFICATION forming part of Letters Patent No. 470,424, dated March 8, 1892.

Application filed September 16, 1891. Serial No. 405,925. (No model.)

To all whom it may concern:

Be it known that we, EVERETT W. FRAZAR, a resident of Orange, county of Essex, and State of New Jersey, and FREDERIC THUMAN, a resident of Chicago, county of Cook, and State of Illinois, both citizens of the United States, have invented a certain new and useful Improvement in Devices for Moistening Air, of which the following is a specification.

The present invention relates to means for keeping air in buildings heated by furnaces or other means supplied with the desired amount of moisture.

Our main object is to provide a simple automatic device not liable to get out of repair for the purpose mentioned.

In the accompanying drawings, which illustrate our invention, Figure 1 is a plan view of one form of the device. Fig. 2 is a side view, partially in section. Fig. 3 is a face view. Fig. 4 is a central section of a modified form, and Fig. 5 is a detail showing one method of supporting the absorbent curtain.

1 is a tank or receptacle adapted to contain water or other suitable liquid 2.

3 is a water outlet or passage, and 4 is a valve controlling the same. The valve is connected by a rod 5 to the arm or frame 6, pivoted at 7. The arm or frame is provided with an adjustable counterbalanced weight 8 or with a counterbalance-spring, the latter arrangement being indicated in dotted lines at 8'. Any other suitable power for moving the arm 6 in one direction may be employed. At the opposite end of the arm 6 is a transverse tube 9, perforated along its lower side and supporting an absorbent material, which is in the form of a freely-suspended curtain 10 of cloth, as distinguished from an absorbent material held in a cup or on a plate. The ends of the tube 9 are closed by removable caps 9' to allow of cleansing. As shown in Fig. 2, the cloth is wrapped around the tube and secured at 11.

12 is a flexible tube extending from the outlet 3 to the tube 9 and communicating with the latter.

13 is a pipe or trough at the bottom of the curtain, but being open at 14.

The device described may be located on a

stand or tripod in front of a register, radiator, or other heater. The weight 8 or spring 8' will overbalance the dry curtain, thereby opening the valve 4 and allowing liquid to flow into the pipe 9, from whence it will escape to the absorbent curtain 10 and will be held thereby by capillary action. The liquid will work down toward the bottom of the curtain for a distance, depending on the adjustment of the counterbalance weight or spring. As soon as the weight of the wet curtain is sufficient to overbalance the weight or spring the valve is moved down, closing the outlet and stopping the further flow of liquid. Any excess of water will work down to the bottom of the curtain and will be caught by the trough 13. The hot air from the register or radiator causes rapid evaporation of the moisture, and in a short time the weight of the curtain decreases, so that the valve is again opened, when the operation described will be repeated.

In Fig. 4 is shown an arrangement in which an inlet-valve is controlled instead of an outlet-valve. 1 is a suitable tank or vessel corresponding to receptacle 1 of Figs. 1, 2, and 3, and 1' is a supply-reservoir. 3' is a water-inlet, and 4' a valve therefor sliding in the guide 4''. 4''' is a stop for the valve. The valve is made heavy, so that it acts as a weight tending to hold the valve open—that is, in the position shown in Fig. 4. From the valve extends a cord or cords 16, over a suitable pulley 17, to the trough 9', supporting curtain 10. At the bottom of the curtain, instead of a drip tube or trough 13, is shown an enlarged fringe or body of absorbent material. The operation of this apparatus is as follows: When it is first put in place, the valve is opened, allowing water to flow from the supply-reservoir into the tank 1 until it is full enough to overflow into the trough 9'. The water then wets the curtain, increasing its weight until it overbalances the weight of the valve, thereby, through the cord 16 raising and closing the valve and stopping the flow of water. When the curtain dries to a certain extent, depending on the size and weight of the valve, the valve descends, and is thus opened, as already described.

Instead of wrapping the curtain or absorbent material around the perforated tube, as

described in connection with Figs. 1 and 2, we may provide the tube with a longitudinal slit 15 along its lower side and slip the upper end of the curtain, which is slightly enlarged, into the slit, as indicated in Figs. 4 and 5, so that when the water is admitted to tube 9 it will gradually soak into the curtain and work downward, instead of running out through perforations.

10 The device described is exceedingly simple, and by the use of suitable material for making the tank, curtain, and other parts it may be made very ornamental.

We do not limit ourselves to just the arrangement described. It is evident, for example, that it is not essential that the weight of the absorbent material when wet should close the inlet or outlet valves, since other arrangements, whereby it should operate to control the flow of liquid, may be used without departing from the spirit of our invention, the main distinguishing feature of which is the use in an hydrator of a variable weight for controlling the flow of liquid in connection with the absorbent freely-suspended curtain, as herein fully set forth. The liquid used with our hydrator may, if desired, be charged with perfumes or disinfectants.

What we claim is—

30 1. The combination of a receptacle containing or adapted to contain water or other liquid, a water-passage therefor, and means for controlling said passage, comprising a variable weight in the form of a freely-suspended and exposed curtain of absorbent material, said passage extending to the curtain for conveying water thereto, and a counter-balance for said variable weight, whereby the wet absorbent curtain overbalances the opposing force and whereby said opposing force is allowed to act when the weight of the absorbent material decreases by evaporation of the liquid, substantially as described.

45 2. The combination of a receptacle containing or adapted to contain a liquid, a valve controlling the flow of said liquid, an absorbent freely-suspended curtain in position to be wet by liquid escaping from said receptacle for moving the valve when the liquid absorbed by it reaches a certain weight, and means for reversing the movement of the valve when the weight decreases by evaporation of the liquid, substantially as described.

55 3. The combination of a receptacle, an outlet therefor, a valve, a movable arm or frame connected to the valve and having means for moving it in one direction, a tube supported by said arm or frame, and an absorbent curtain freely supported by the tube, said tube

being in communication with the outlet, substantially as described. 60

4. The combination of a valve and means for moving it, consisting of a counterbalanced arm or frame and an absorbent curtain freely supported thereby, constituting a variable weight for moving the arm or frame, substantially as described. 65

5. The combination of a receptacle containing or adapted to contain a liquid, an outlet therefor, a valve for said outlet, an arm connected to the valve, means tending to move said arm in one direction to move the valve, and a water-absorbing curtain suspended from said arm, the weight of which tends to move said arm in the opposite direction, substantially as described. 75

6. The combination of a suspended curtain, a valve connected to and operated by the weight of said curtain, means at the top of the curtain for conveying water to it, and a catch-trough at the bottom of the curtain, substantially as described. 80

7. The combination of a receptacle having a valve-opening controlling the same, means for moving the valve in one direction, consisting of a freely-suspended curtain of absorbent material, wet by liquid flowing from said receptacle, and means for catching or retaining liquid that reaches the bottom of the curtain, substantially as described. 90

8. The combination of a receptacle having a valve-opening for controlling the same, means for moving the valve in one direction, consisting of a freely-suspended curtain of absorbent material, wet by liquid flowing from said receptacle, and a trough at the bottom of the curtain and supported thereon, substantially as described. 95

9. The combination of the tube suitably supported and having a slit along its lower side, and means for introducing water into said tube, of the curtain of absorbent material held in and closing said slit, whereby water in the tube will be absorbed by the curtain, substantially as described. 100

This specification signed and witnessed this 13th day of August, 1891. 105

EVERETT W. FRAZAR.

Witnesses:

W. SCOTT SIMS,

EVERETT FRAZAR.

This specification signed and witnessed this 22d day of August, 1891.

FREDERIC THUMAN.

Witnesses:

J. T. CANTWELL,

A. H. JACKSON.