(No Model.)

J. F. BEALE.

HOT AIR REGISTER.

No. 310,116. Patented Dec. 30, 1884.

Fig. 1.

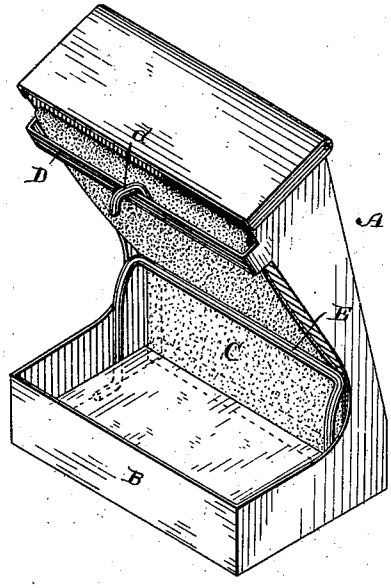


Fig. 3.

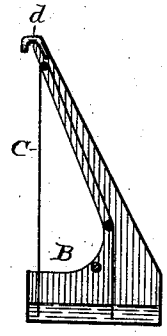
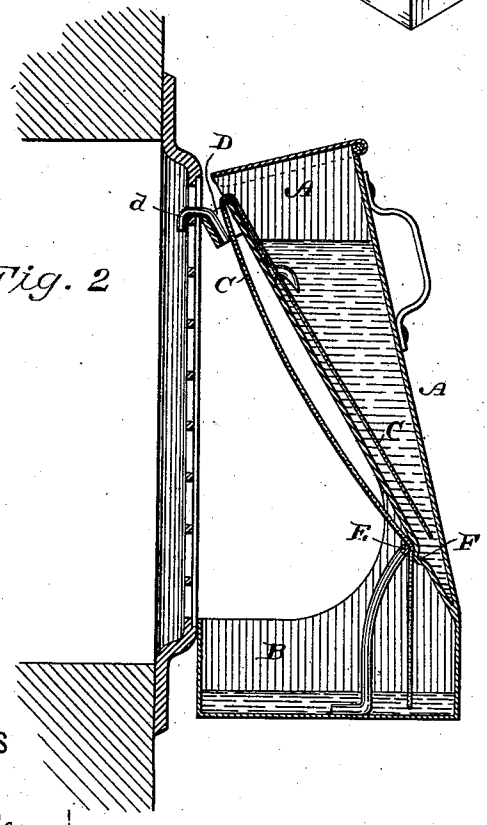


Fig. 2



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN F. BEALE, OF WASHINGTON, DISTRICT OF COLUMBIA.

HOT-AIR REGISTER.

SPECIFICATION forming part of Letters Patent No. 310,116, dated December 30, 1884.

Application filed April 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN FORBES BEALE, a citizen of the United States, residing at Washington city, in the District of Columbia, have invented new and useful Improvements in Air Purifiers and Moisteners for Hot-Air Registers, of which the following is a specification.

My invention relates to improvements in apparatus for moistening and purifying heated air escaping from a register of the class in which there is provided a suitable self-moistening service of textile fabric arranged in proximity to the register, so that heated air therefrom comes in contact with the fabric. My object, mainly, is to insure a thorough purification and proper moistening of the heated air by inexpensive and simple means.

In the accompanying drawings, which show a preferable construction of apparatus involving my improvements and some modifications thereof, Figure 1 is a perspective view. Fig. 2 is a view partly in side elevation and partly in section with the apparatus in position. Fig. 3 is a modification of Fig. 2 on a reduced scale.

A denotes a reservoir; B, an overflow-receptacle; C, the textile fabric suspended over the inner or face wall of the reservoir, and held in the bottom receptacle by a suitable retaining device, such as a spring-bar, E, secured by its end arms to or near the bottom of the receptacle B. D is a fender-bar, to which is secured a hook. F is a ledge on the inner or face wall of the apparatus, against which the bar E presses the fabric.

The apparatus is made of sheet metal—such as galvanized iron or tin—and of sizes to suit the various registers. It should be made of equal or greater length and breadth than the register, and adapted to fit closely to the upper part of the same, so as to intercept the heated air in its tendency to ascend as it issues out of and from the register, its face wall extending downward and outward from the top of the register, as shown in Fig. 2. The inner or face wall of the apparatus also constitutes the inner or face wall of the reservoir. This face wall is inclined, gradually approaching the outer wall of the apparatus toward its lower end. The sides and back or outer wall of the reservoir should be higher than the face wall, and the back or outer wall may be provided with a hinged lid to cover the reservoir, as shown in the drawings. Hooks should be placed near the top of the reservoir to hold the textile fabric. The fender-bar D is rigidly fastened to the side walls slightly below the top of the inner or face wall of the reservoir, with space enough between it and the face wall for the fabric to pass. The bottom receptacle should hold about the same quantity of water as the reservoir; or it may be of less capacity, and its inner wall may bear as an offset against the register or below it. This receptacle may project inwardly far enough to sustain the apparatus from the register a sufficient distance to make the spaces at the sides for the lateral escape of the hot air of as great or greater an area than the area of the air-outlet of the register-face. The spring-bar E serves to press the fabric C back from the register and hold it at or near the bottom of the lower receptacle, or against a ledge, F.

Of the textile fabrics I prefer cotton terry. The fabric should be at least the width of the face or inner wall of the apparatus, and of an area such as to insure that the hot air in escaping from the register shall impinge against it before escaping laterally into the room. The fabric being suspended outward and downward from the top of the register, the heated air in issuing out of and ascending therefrom is brought in contact with the saturated surface, which moistens it and separates and collects therefrom the dust and other impurities before they escape into the room to be heated. Water should be poured into the reservoir until it overflows upon the fabric and saturates it throughout. The back and side walls of the reservoir being higher than the face or inner wall, the water can escape only by flowing over the latter, the bottom receptacle catching any overflow and preventing the water from spilling out of the apparatus. When the heat is intense and the evaporation rapid, the bottom receptacle may be filled with water and used as an auxiliary reservoir, the fabric being supplied from above and below. The fabric being saturated, the capillary attraction thereof will keep it moistened until the water is exhausted by evaporation.

It is evident that an apparatus involving features of my invention could be made smaller than the face of a register and answer in some degree the purposes set forth; or a like apparatus could be used dispensing with the textile fabric, in which case the hot air would strike against the inclined face wall, heating the water in the upper reservoir, and be deflected into water in the bottom receptacle, causing evaporation from both; or an apparatus made with a reservoir at the bottom only, and having an inclined wall to fasten into the register, thus dispensing with the reservoir A, as shown in Fig. 3, would embrace features of my invention, and answer in some degree its purposes.

It will be seen that by my apparatus the fabric is presented closely to the top of the register and inclined outwardly and downwardly therefrom, thus preventing the hot air from an upward escape as it issues out and ascends from the register, and compelling it to escape from the sides. The entire volume of hot air is thus brought in direct contact with the fabric before it escapes into the room to be heated.

I am aware that an evaporator has heretofore been provided with an upper and lower water-compartment and a connecting fabric between them exposed to the hot air escaping from a register, and arranged so as to extend vertically or parallel with the register, allowing the heated air to escape in all directions.

What I claim, and desire to secure by Letters Patent, is—

1. A water-holder and fabric-supporter for air purifiers and moisteners, having the inclined inner or face wall, a support by which the apparatus is secured at the top close to a register, and means for supporting the textile fabric in an inclined position, substantially as and for the purposes set forth.

2. A water-holder and fabric-supporter for air purifiers and moisteners, having the inclined inner or face wall, the bottom receptacle, and the upper reservoir, whereby the apparatus is adapted to be secured at its upper end close to a register, and provision is made for the lateral escape of heated air issuing therefrom, substantially as set forth.

3. In an evaporator for hot-air registers, the combination of a water-receptacle connected to the upper part of the register, so as to check the upward escape of the hot air, with a fabric supported thereby a short distance from the face of the register, substantially as set forth.

4. The combination of the bottom receptacle, B, the reservoir A, the inclined inner or face wall, the supporting-hook *d*, fender-bar D, and the retaining device in the bottom receptacle, substantially as and for the purposes set forth.

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Witnesses:
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