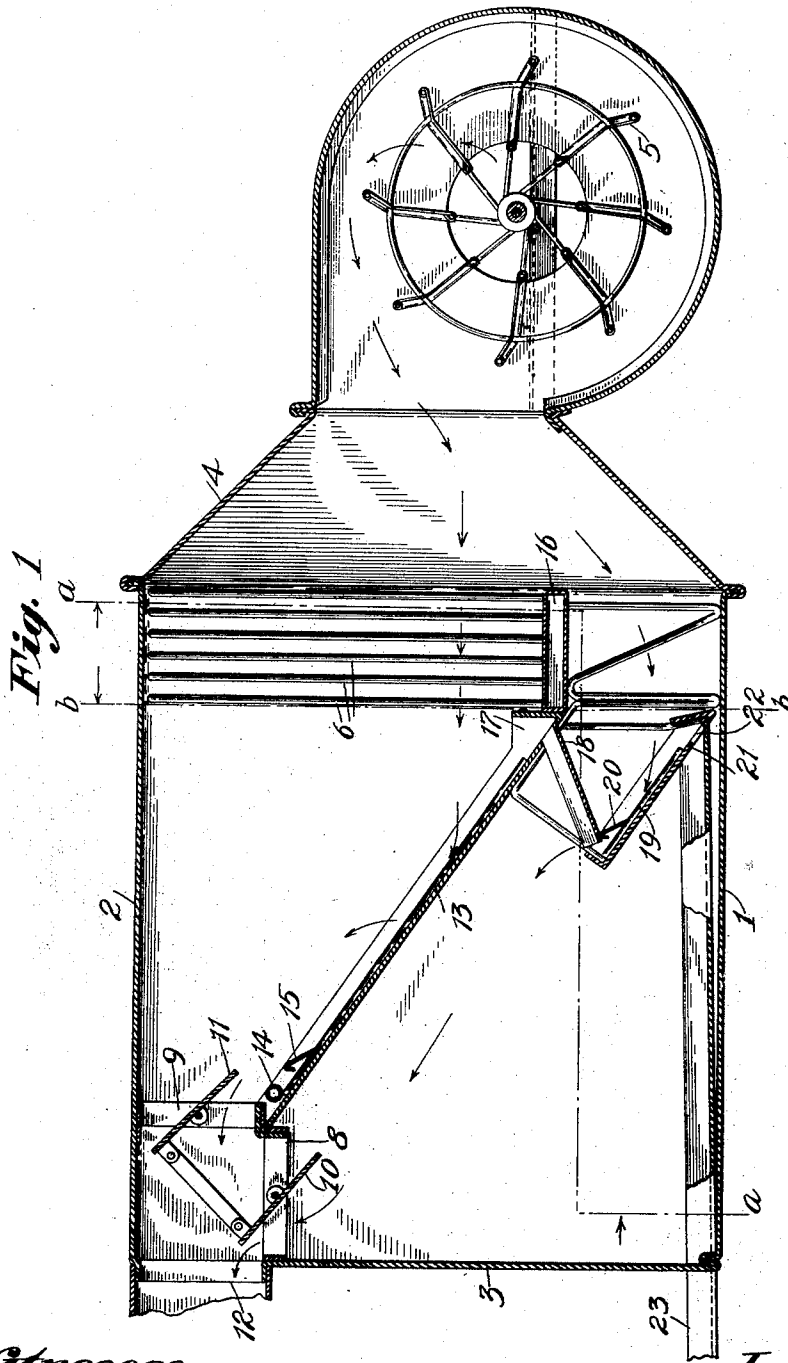


W. F. McGUIRE.
AIR PURIFIER, MOISTENER, AND HEATER.
APPLICATION FILED MAY 6, 1910.

1,006,577.

Patented Oct. 24, 1911.

2 SHEETS—SHEET 1.



Witnesses
C. E. Bridge
E. Behel

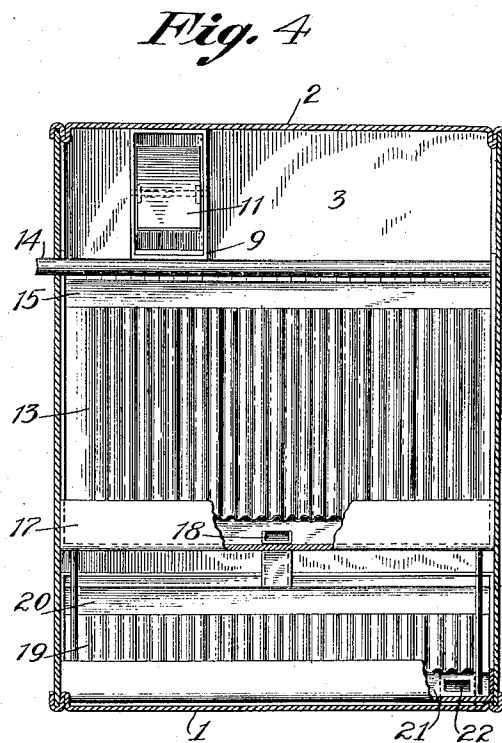
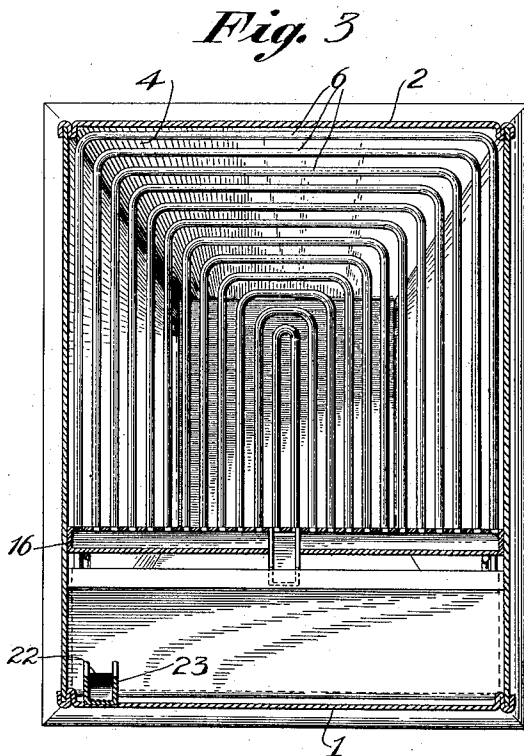
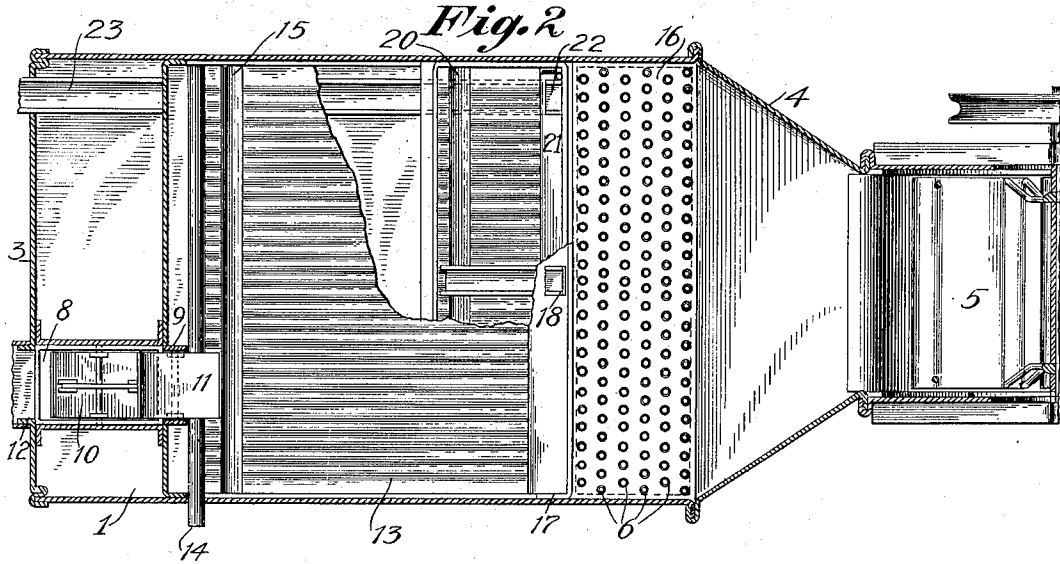
Inventor:
William F. McGuire
by A. O. Behel
Attorney

W. F. McGUIRE.
AIR PURIFIER, MOISTENER, AND HEATER.
APPLICATION FILED MAY 6, 1910.

1,006,577.

Patented Oct. 24, 1911.

2 SHEETS—SHEET 2.



Witnesses:
C. E. Bridge,
E. Behel.

Inventor:
William F. McGuire.
by A. O. Behel
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM F. McGUIRE, OF ROCKFORD, ILLINOIS.

AIR PURIFIER, MOISTENER, AND HEATER.

1,006,577.

Specification of Letters Patent.

Patented Oct. 24, 1911.

Application filed May 6, 1910. Serial No. 559,840.

To all whom it may concern:

Be it known that I, WILLIAM F. McGUIRE, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Air Purifiers, Moisteners, and Heaters, of which the following is a specification.

The object of this invention is to construct an apparatus for supplying pure air to living apartments and public buildings, for instance, school houses.

In the accompanying drawings, Figure 1 is a lengthwise vertical section. Fig. 2 is a horizontal section. Fig. 3 is a vertical section on dotted line *a a* Fig. 1. Fig. 4 is a vertical section on dotted line *b b* Fig. 1.

The casing comprises the bottom 1, top 2, rear end 3 and contracted front end 4 suitably connected. To the open end of the front end 4 is connected a force fan or blower 5 which drives a current of air into the casing in the direction indicated by the arrows. A series of heating coils 6 are located within the casing and are held elevated by the supports 7.

At the junction of the top 2 and rear end 3 is located a double air discharge comprising the outlets 8 and 9 controlled by the valves 10 and 11 respectively which are pivotally connected to the casing and are pivotally connected by a link. As one valve opens the other valve closes or both may be half open at the same time. A common air discharge outlet 12 communicates with the outlets 8 and 9.

A corrugated inclined plate is located in the casing and forms an upper and a lower compartment therein. The upper face of this plate constitutes a water surface 13 and a water feed pipe 14 located at its upper end extends transversely of the corrugations. Just below the water feed pipe 14 is located a water distributor 15 to direct the water to the various corrugations of the inclined surface. The lower end of this inclined surface terminates near the lower end of the drum 16 with which the heating coils 6 are connected and connect with a trough 17 which has a discharge spout 18.

A secondary inclined corrugated surface 19 is located beneath the lower end of the main inclined corrugated surface 13, and onto which the spout 18 discharges. A water distributor 20 is located across the upper end of the secondary inclined surface

19 and directs the water down the corrugations. A trough 21 is located at the lower end of the secondary corrugated surface 19, and an opening 22 discharges into the main discharge trough 23 leading outside of the casing. The water admitted through the pipe 14 will be discharged over the corrugated surface 13 and will be discharged at the lower end, thence through the spout 18 onto the upper end of the secondary corrugated surface, and through the opening 22 into the discharge trough 23 by which it will be carried outside the casing. The corrugations of the surfaces will insure an even distribution of the water over the entire surface. If the valve 10 be closed, and the valve 11 open, the air forced into the casing by the fan or blower, will pass around the heating coils and be directed against the water flowing down the inclined corrugated surface and finally be discharged through the outlet opening 12 to the apartments to be supplied with air. This movement of the air will first heat it, and any dirt accumulated by the air coming in contact with the heating coils, in addition to the dust carried in from the outside by the air will when it strikes the down flaring wall, be collected and carried off by the water, leaving the air free of impurities. The air in coming in contact with the water will collect sufficient moisture to give the apartments the required humidity. By opening the valve 10 and closing the valve 11 the air will pass beneath the heating coil, and the dirt particles will be collected by the water flowing down the secondary inclined corrugated surface 19. By partially opening both valves 10 and 11 the temperature of the air can be properly regulated in addition to the purification of it and supply it with the required moisture. It will be noticed that the direction of the flow of water is against the direction of the current of air, which will bring the air forcibly against the water, and the dirt particles will also be forced against the down flowing water.

This apparatus is especially adapted for heating school houses and other large buildings, but is as applicable to private dwellings.

I claim as my invention.

1. In a structure of the character set forth, the combination with air heating means, of a by-pass for the air past the heating means,

means for moistening the air heated and also that which by-passes the heating means, a common outlet for the heated and unheated air, means for varying the amount of heated air delivered to the outlet, and means for automatically and inversely varying the amount of unheated air so delivered.

2. The combination of a suitable casing, an inclined corrugated surface, an air fan or blower directing air against the corrugated surface, a heater located between the surface and fan or blower, and a secondary inclined corrugated surface in order that air forced by the fan or blower will come in contact with this secondary surface without coming in contact with the heater.

3. The combination of a suitable casing, an inclined corrugated surface, an air fan or blower directing air against the corrugated surface, a heater located between the surface and fan or blower, a secondary inclined corrugated surface in order that air forced by the fan or blower will come in contact with the secondary surface without coming in contact with the water heater, a water supply to the first mentioned surface, a conduit leading from the first surface to the secondary surface, and a discharge conduit for the secondary surface.

4. In a structure of the character set forth, the combination with air heating means, of a by-pass for the air past the heating means, means for moistening the air heated and also that which by passes the heating means, a common outlet for the heated and unheated air, valves respectively controlling the supplies of heated and unheated air delivered to the outlet, and a connection between the valves that causes one to close as the other opens.

5. In a structure of the character set forth, the combination with separate moistening chambers, of means for delivering heated air to one and unheated air to the other, and means for governing the discharge of air from said chambers.

6. In a structure of the character set forth, the combination with separate moistening chambers, of means for successively passing a stream of water therethrough, means for delivering heated air to one chamber and unheated air to the other, and means for governing the discharge of air from said chambers.

7. In a structure of the character set forth, the combination with separate moistening chambers, of means for causing water to flow in each chamber in a direction opposed to the flow of air therein, means for delivering heated air to one chamber and unheated air to the other, and means for governing the discharge of air from said chambers.

8. In a structure of the character set forth, the combination with a casing, of a water directing plate located therein and forming two air chambers, a second water plate located beneath the first plate, and means for delivering heated air to one chamber and unheated air to the other.

9. In a structure of the character set forth, the combination with a casing having an inlet at one end and an outlet at the other, of a water directing plate located within the casing and producing two chambers, means for supplying water to the plate for moistening the air in one of the chambers, a second plate located below the first plate, means directing the water from said first plate to the second for moistening the air in the second chamber, air heating means arranged in advance of one chamber, a by-pass communicating with the other chamber, said chambers both having communication with the air outlet, and valves controlling said communication.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM F. McGUIRE.

Witnesses:

A. O. BEHEL,
E. D. E. N. BEHEL.