

Sept. 6, 1927.

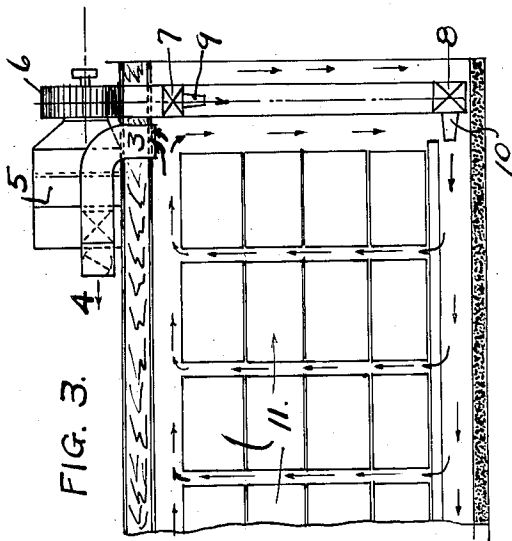
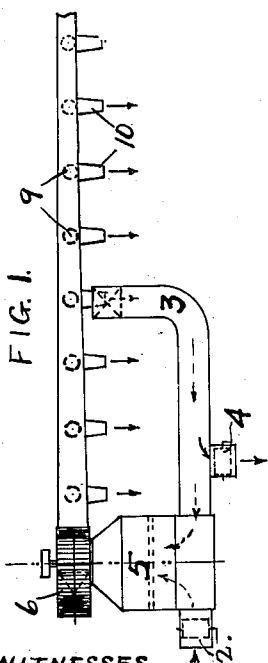
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E. NESDAHL

SYSTEM OF VENTILATING AND HUMIDIFYING

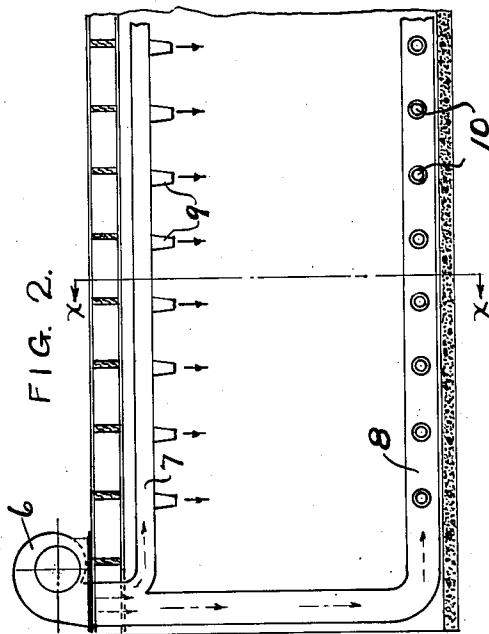
Filed Aug. 20, 1924

3 Sheets-Sheet 1



WITNESSES.

Marcus Olsen
John C. Bailey



INVENTOR.

Eilert Nesdahl.

Sept. 6, 1927.

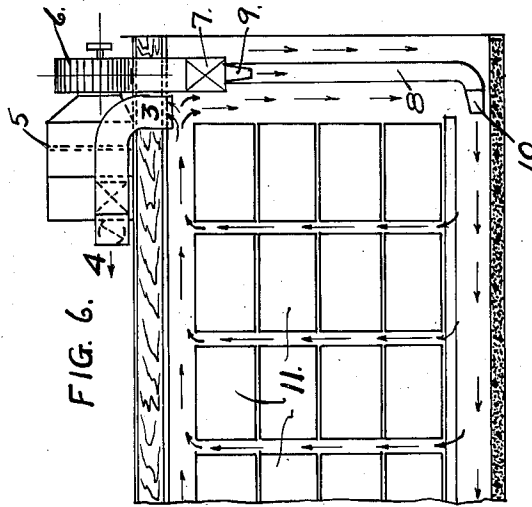
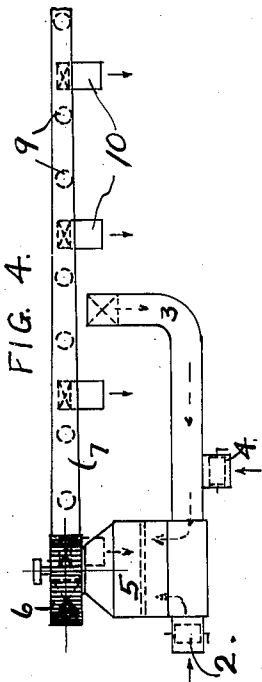
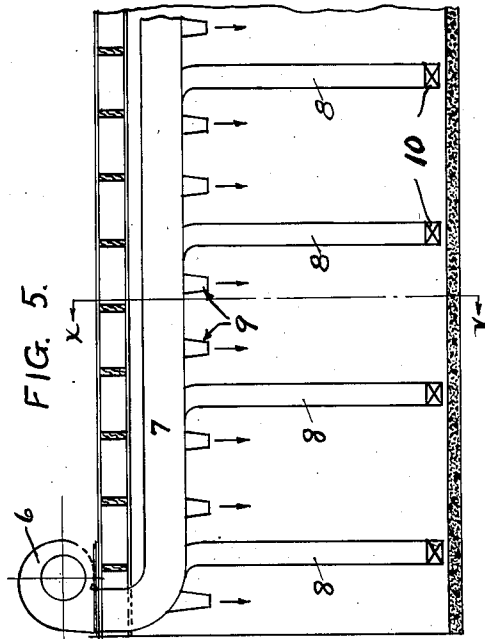
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SYSTEM OF VENTILATING AND HUMIDIFYING

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WITNESSES.

Marcuswellson,
John C. Bailey

INVENTOR

Eilert Nesdahl.

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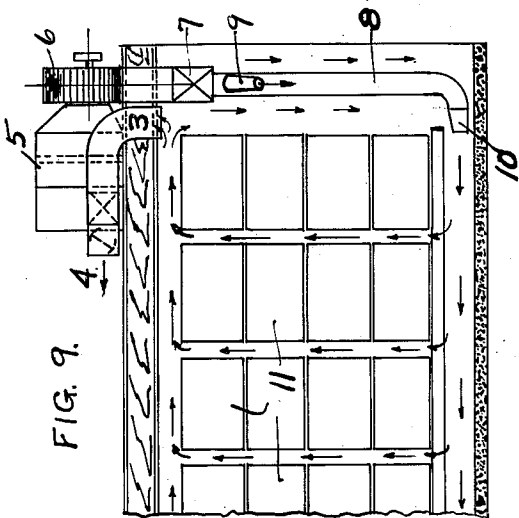
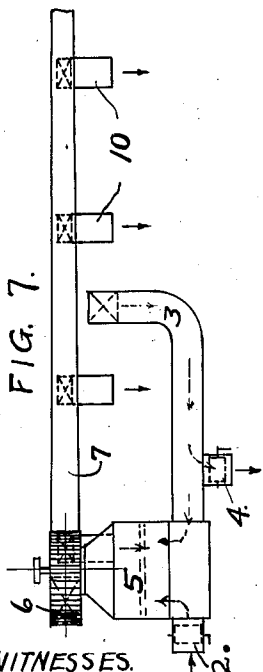
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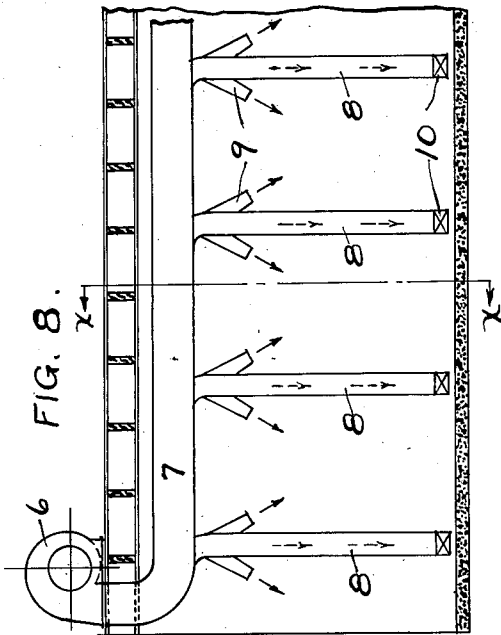
Filed Aug. 20, 1924

3 Sheets-Sheet 3



WITNESSES.

Marshall
John E. Bailey



INVENTOR

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UNITED STATES PATENT OFFICE.

EILERT NESDAHL, OF CAMDEN, NEW JERSEY.

SYSTEM OF VENTILATING AND HUMIDIFYING.

Application filed August 20, 1924. Serial No. 733,087.

My invention has reference to air circulating apparatus and consists of certain construction which is fully set forth in the following specification and shown in the accompanying drawing which forms a part thereof.

The object of my invention is to provide a novel system which may be employed in industrial plants for bringing the air circulation to the floor line and also creating a rapid induced circulation within the room by the aid of an auxiliary conduit at the ceiling having nozzles discharging downward.

My invention applies to the circulation of either dry air for dry rooms or moist air for humidification. The air delivered at the floor line and leaving the air conduit at fair velocity will distribute across the room and rise to ceiling of room because of the natural difference in density of air at floor and ceiling.

More particularly, my invention is intended for use in connection with dry rooms, where the natural tendency of the warm or hot air entering is to follow the ceiling. My invention will deliver the air to and along the floor line, allowing the air to rise to the ceiling from the difference in density of air at these points.

For the purpose of illustrating my invention I have shown in the accompanying drawings forms thereof which are at present preferred by me since they will give in practice satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Referring to the drawings:—

Figure 1 represents a plan view of the air distributing and circulating system embodying my invention.

Figure 2 represents an elevation of the same.

Figure 3 is a cross sectional elevation of the same on line $x-x$.

Figure 4 is a plan view of a modified form of my invention.

Figure 5 is an elevation of the same.

Figure 6 is a cross sectional elevation of the same on line $x-x$.

Figure 7 is a plan view of still another modification of my invention.

Figure 8 is an elevational view of the same.

Figure 9 is a cross sectional elevation of the same on line $x-x$.

Referring to the drawings, in which like reference characters indicate like parts, 2 designates a fresh air conduit with damper connecting to a point outside the room. 3 is a conduit for either bringing the air from room back to apparatus or letting it escape to the atmosphere outside the room or doing both in part. 4 is a conduit connection with damper for allowing a portion or all of air to escape from room to atmosphere outside of room. 5 is a heater or combination heater and humidifier for bringing the air to the proper temperature and relative humidity. 6 is a blower for drawing the required air through conduits 2 and 3 and delivering same through conduits 7 and 8. 7 is a conduit near ceiling of room for creating an induced downward circulation of air within room, resulting from the impact of high velocity air through nozzles 9 upon the air of the room. 8 is a conduit for delivering air near floor of room and discharging the air at floor line, creating a flow of air across the room, resulting from the impact of high velocity air from nozzles 10. The numeral 11 designates the material or goods to be dried, or subjected to the ventilation, shown arranged in upright stacks spaced from each other slightly; the circulation of air being indicated by the vertical arrows between the stacks of goods, and the horizontal arrows above and below the same.

I have shown heater, or combination humidifier and heater, also the blower located above ceiling of the room to which the air is to be supplied. This equipment may be located either in the room or adjacent to the room in which air is to be supplied without departing from the spirit of the invention.

I have shown my invention in the forms which I have adopted for commercial practice and which I have found excellently adapted to the object of creating a rapid circulation of air within a crowded or packed room, but I do not restrict myself to the details of construction as these may be modified in various ways without departing from the spirit of the invention.

It will now be apparent that I have devised a novel and useful system of ventilating and humidifying which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while I have, in the present instance, shown and described preferred embodiments thereof which will give in practice satisfactory and reliable results, it is to be understood that such embodiments are susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

I claim:

1. In a construction of the character stated, a combination of a room to be ventilated, and an upper air inlet adjacent to the ceiling and disposed to project the air downwardly, a lower air inlet near the floor of said room and disposed to project the air across the room near the floor line, an air outlet near the ceiling of the room, and means to force a supply of air through said upper and lower air inlets simultaneously.

2. In a construction of the character stated, the combination of a room to be ventilated, a plurality of upper air inlets adjacent to the ceiling and one of the walls of said room adapted to project air downwardly, a plurality of lower air inlets adjacent to the floor of the room and said wall, disposed to project air across the room, an air outlet near the ceiling of the room and means to force air through said upper and lower air inlets simultaneously and at suitable velocity.

3. In ventilating and drying apparatus of the character stated, the combination of a room to be ventilated, an air supply conduit, means for discharging air therefrom at a high velocity from the ceiling downwardly and in proximity to a wall of the room, means for discharging air from said conduit laterally across said room near the floor line thereof, a vent opening near the top of the room for the exit of air, a recirculating conduit intermediate said vent opening and said air supply conduit, and means for regu-

lating the air supply and the amount of air recirculated.

4. In a device of the character stated, the combination of means for delivering heated air horizontally across the floor line of a room, upper downwardly discharging nozzles positioned near the ceiling of said room, and means for forcing air at a high velocity downwardly through said upper nozzles, substantially in vertical alignment with said lower air delivery means.

5. In a ventilating system of the character stated, the combination of a room to be ventilated, an air supply conduit, a plurality of lower air nozzles communicating therewith and disposed to project streams of air across the room at the floor line, a plurality of upper air nozzles communicating with said air supply conduit, in substantially vertical alignment with said lower air nozzles and disposed to project air downwardly in said room, a vent opening in the top of the room, a blower in said air supply conduit, a recirculating conduit intermediate said vent opening and said air supply conduit, an outlet opening in said recirculating conduit, a valve cooperating with said outlet to regulate the proportions of air recirculated and the air discharged through said outlet, an air intake in said air supply conduit and a valve for regulating the fresh air through said intake.

6. In a ventilating system of the character stated, the combination of a room to be ventilated, an air supply conduit, a lower air nozzle communicating therewith and disposed to project a stream of air across the room at the floor line, an upper air nozzle communicating with said air supply conduit, in substantially vertical alignment with said lower air nozzle and disposed to project air downwardly in said room, a vent opening in the top of said room, a blower in said air supply conduit, and a recirculating conduit intermediate said vent opening and said air supply conduit.

In testimony of which invention I have hereunto set my hand.

EILERT NESDAHL.