

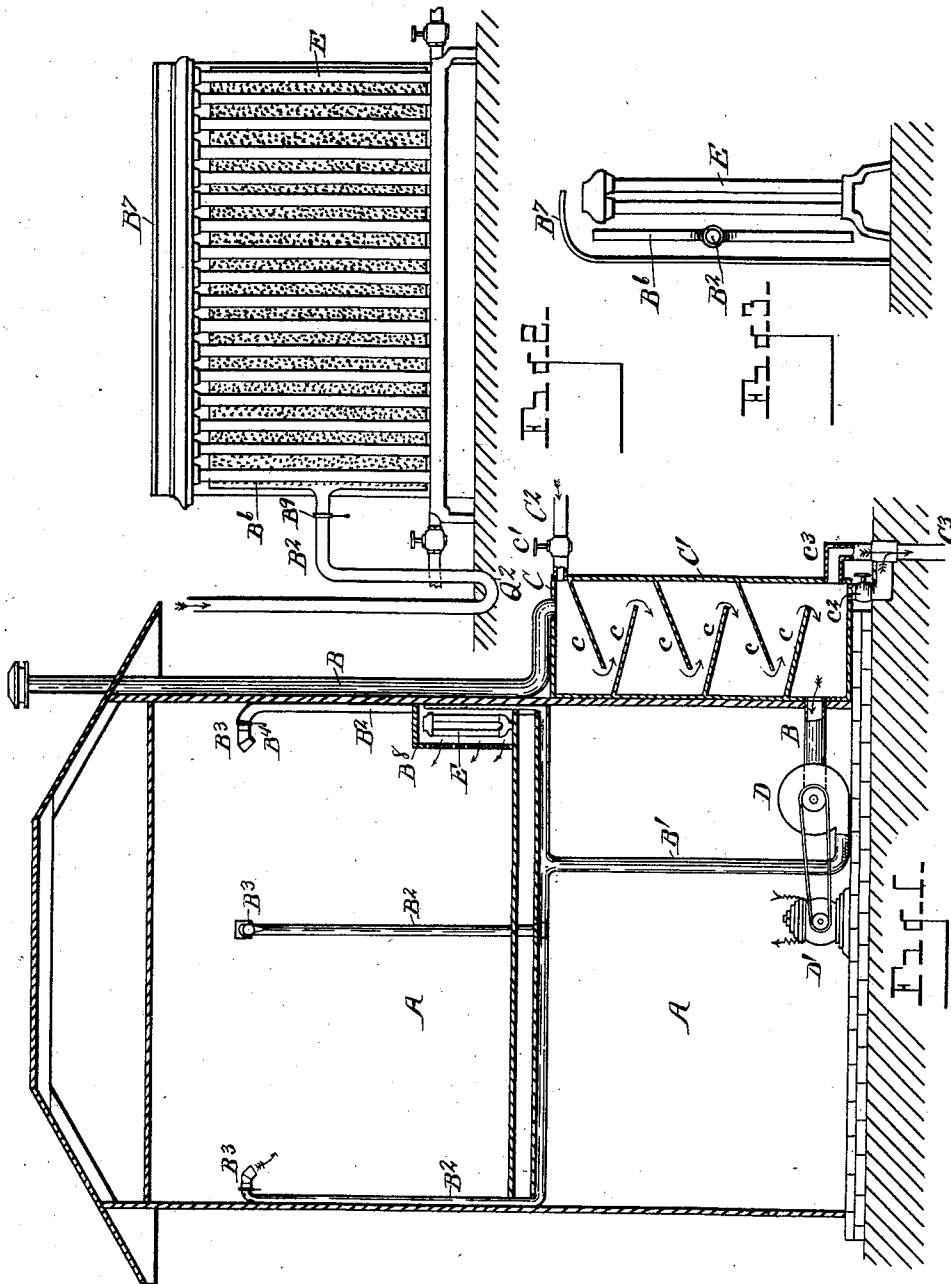
(No Model.)

3 Sheets—Sheet 1.

J. McCREERY.
VENTILATING SYSTEM.

No. 605,806.

Patented June 14, 1898.



WITNESSES

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M. A. Martin

INVENTOR

INVE.
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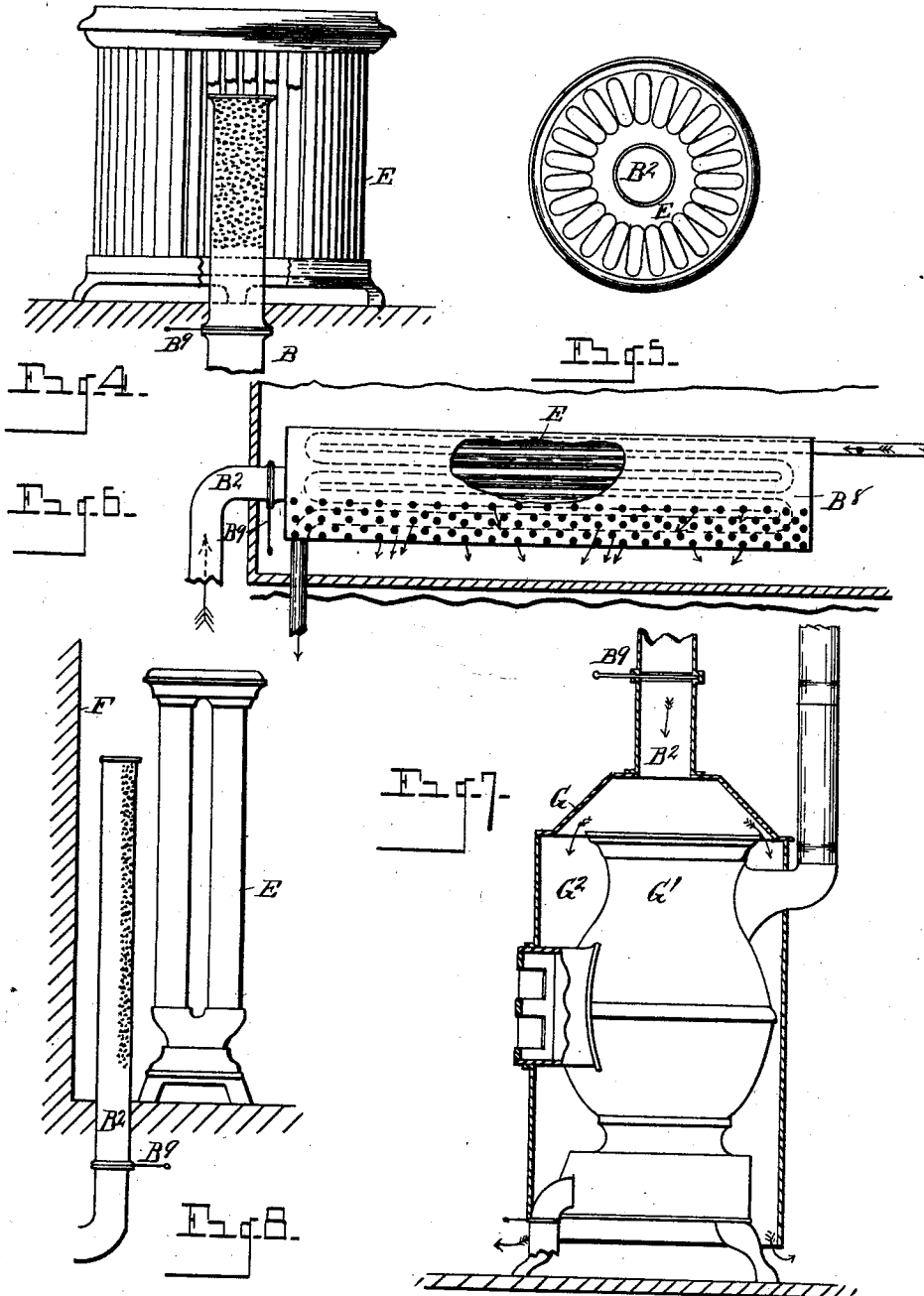
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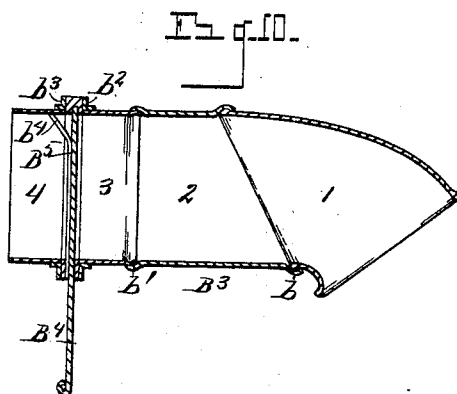
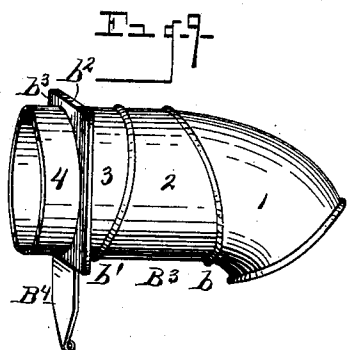
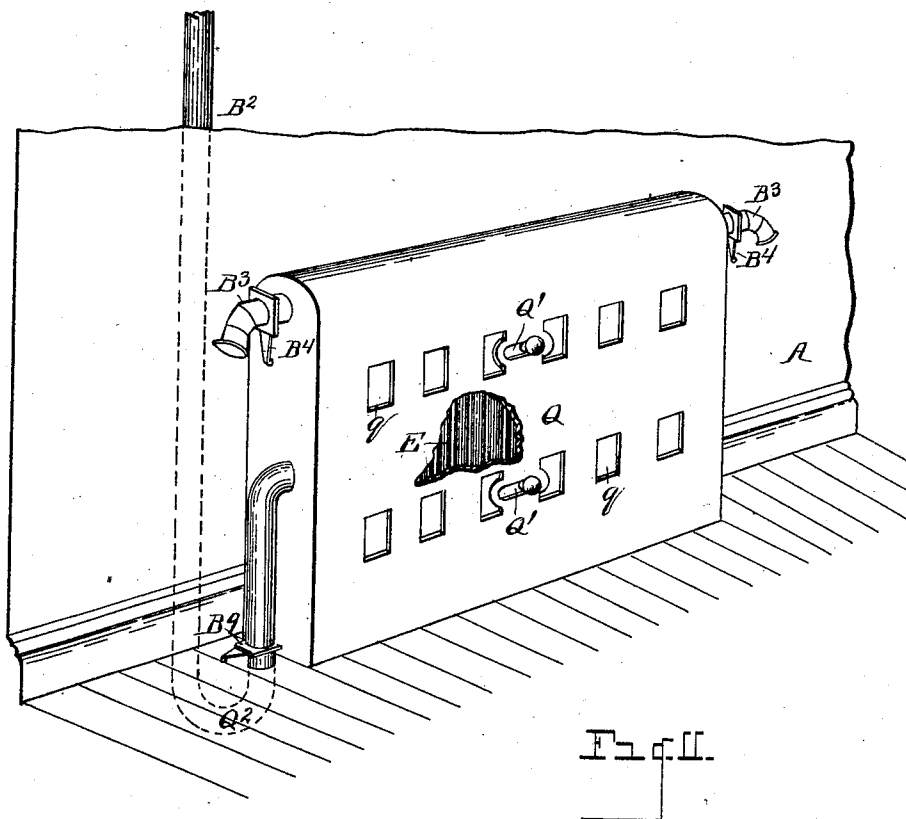
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J. McCREERY.
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Patented June 14, 1898.



WITNESSES

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JOSEPH McCREERY, OF TOLEDO, OHIO.

VENTILATING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 605,806, dated June 14, 1898.

Application filed October 19, 1895. Serial No. 566,241. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH McCREERY, a citizen of the United States, residing at Toledo, county of Lucas, State of Ohio, have invented a certain new and useful Improvement in Ventilating Systems; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improved method of ventilating buildings, vessels, and other apartments, together with improved means whereby such ventilation may be effected in a superior and simple manner.

I carry out my invention as hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a view, partly in section and partly in elevation, illustrating features of my invention. Figs. 2, 3, 4, 5, 6, 7, and 8 illustrate in detail modifications of my invention. Fig. 9 is a detail view of one of the nozzles in perspective. Fig. 10 is a longitudinal sectional view of the same. Fig. 11 is a view in perspective, showing a hood or jacket over a radiator provided with nozzles.

The invention herein set forth is a continuation of certain features heretofore embodied in a certain application filed by me April 22, 1891, Serial No. 389,982.

My present invention is designed to introduce a supply of pure fresh air into a given apartment in a superior and efficient manner and also to heat the air so introduced after it has issued from the air-supply pipe within a given apartment.

The invention consists in a method and apparatus for ventilating by which air is admitted into an apartment in streams coming in different directions and yet the angles of the streams are so varied as to prevent draft.

A represents one or more apartments of a building, vessel, or other analogous structure.

B denotes an induction or air-inlet pipe, which I preferably lead above the top of the building or other structure in order that air may be introduced into the building as free from impurities as possible.

C represents a cleansing device, which I

prefer to interpose in the inlet-pipe B at any suitable point. This cleansing device, as herein shown, consists of a case C', provided interiorly with a series of inclined shelves or plates c, preferably arranged on opposite sides of the case alternately, the various shelves or plates projecting from the adjacent wall of the case in a decline toward the opposite wall, the inner edges of the plates on opposite sides of the case preferably overlapping, as shown.

C² is a water-pipe led into the interior chamber of the case C', which may be provided with a controlling-valve c'. At the base of the case C', I provide a drain-pipe C³, having a controlling-valve c² and an overflow-pipe c³ leading thereinto. By closing the valve c² water may be allowed to stand in the base of the case C' up to the overflow-pipe. A continuation of the pipe B leads from the base of the case C' to a fan-blower, (shown in outline at D.) This blower may be operated by any desired power—as, for example, by an electric motor, (shown in outline at D'.)

B' is an air-supply pipe leading from the fan-blower.

B² represents a series of branch pipes leading from the supply-pipe B' to any desired apartment or apartments of a building or other structure. I have shown in the accompanying drawings a portion of the branch pipes terminating with nozzles B³, said nozzles being shown in detail more fully in Figs. 9 and 10. Where the branch pipes B² terminate in nozzles B³, I prefer that said nozzles shall each be constructed in the form of an elbow having a plurality of sections, as indicated in the drawings by the numerals 1 2 3 4. The sections 1, 2, and 3 have their adjacent edges articulated together, as shown at b and b'. The sections 3 and 4 have their adjacent edges flanged, as indicated at b² b³, to form a guideway for an air gate or slide B⁴. Said gate is provided with a spring-tongue B⁵, movable with the gate and having its inner end bent, as shown at b⁴, so as to prevent the pulling out of the gate from the guideway. It will be seen that by articulating the sections 1, 2, and 3 together, as above described, provision is made whereby the exit into said nozzle may be turned in different directions. The sections 1 and 2 are articulated together

at an angle. Thus by a nozzle so constructed the air can be admitted into the room either straight forward from the nozzle or the nozzle may be turned so as to direct the introduced air-current to the right or left or upward or downward, as may be desired. Where a series or multiple of nozzles are located in a given room, it will be seen that the air can be introduced thereinto in several streams in different directions to more thoroughly agitate and ventilate the room or to accommodate different requirements or necessities of various occupants therein. This is one of the important features of my invention that by this method, construction, and arrangement of devices I am enabled to force fresh air into a given apartment in several streams or currents and in several directions. Thus a workman is able to direct a current of air upon a hot day upon himself either sitting or standing at his work or when changing to different positions about his work. At the same time the air-gate enables him to control the amount of air admitted, as he may readily open the gate wide or close it part way or wholly, as may be preferred.

Certain other of the branch pipes B^2 , I have shown opening into an apartment adjacent to a suitable heating device in any suitable manner, whereby the air admitted into the apartment may be heated after the air has issued from the outlet of the branch pipe, the air so heated, by coming into contact with the heater, being spread or disseminated into the room in a heated condition. In many locations and in many circumstances it may be impracticable to supply or employ a furnace or other heater to heat the air before it is discharged from the branch pipes B^2 . Thus it may often be found desirable to locate my ventilating apparatus in structures already equipped with heating devices in the several apartments thereof; but my invention contemplates such a method and arrangement as will enable me to so introduce my improved ventilating system as to effectually provide for the heating of the air forced into a given apartment by leading the emission end of a desired number of pipes B^2 into the room adjacent to a heater either already in the room or which may be supplied. As shown in Figs. 1, 2, 3, 4, 5, 6, and 8, E denotes a radiator. In Figs. 4 and 5 the radiator is shown of circular form, the emission end of the corresponding pipe B^2 being located interiorly of the radiator, the end of pipe B^2 being preferably perforated, as shown. As so arranged it will be obvious that the air passing laterally from the pipe B^2 must come in contact with the radiator before it is disseminated into the room, whereby the air is heated, thus insuring a fresh-air supply being disseminated into the apartment in a warm or heated condition. As shown in Figs. 1, 2, 3, and 8, the radiator is essentially of rectangular form, the emission end of the pipe B^2 being led adjacent thereto between the radiator and the wall, (in-

dicated at F.) By such an arrangement it will also be seen that the fresh-air supply emitted through the corresponding pipe B^2 will come in contact with the radiator before it is disseminated into the room, whereby it will be disseminated in a heated condition. Where a rectangular radiator is employed, the terminal end of the pipe B^2 may be in the form of a drum (indicated at B^6) perforated on the side adjacent to the radiator, such a construction being indicated at Figs. 2 and 3. In said latter figures I have shown a sheet of metal B^7 back of the drum, its upper edge being curved forward over the radiator, such a sheet serving materially to hold the air-supply upon and direct it through the radiator to facilitate the heating of the air-supply.

In Figs. 1 and 6 I have shown the radiator inclosed in a jacket B^8 of any suitable material, the front thereof being perforated to allow the heated air to pass therethrough into the room.

In Fig. 11 I have shown the terminal end of the pipe B^2 leading into an inclosing hood or jacket Q, within which is located any suitable heater or radiator E. In this case the air admitted within the hood from the pipe B^2 is heated by circulation about the heater in the manner already described. The hood is provided with one or more nozzles B^3 , whereby the air heated within the hood can be discharged into the room in any desired direction. The front of the hood may also be provided with a series of openings q , controlled by a damper Q' . By such a construction it will be evident that the air may be discharged into the room through the openings q , if desired, by closing the slides in the nozzles, or by opening said slides and closing the dampers Q' the air may be discharged into the room through the nozzles. Where the pipe B^2 leads into a room adjacent to a heater from above, I prefer to provide the pipe with an elbow or curve, as shown at Q^2 , to prevent the air when heated being drawn back through the inlet-pipe, as might be the case when the blower was not running.

In Fig. 7 I have shown another modification of my invention where a branch pipe B^2 communicates through a jacket G, located about a heating-stove G' , the jacket forming a hot-air chamber G^2 between it and the stove, open at the base thereof, as shown in Fig. 7. By this construction it will be evident that the air forced through the branch pipe B^2 passes over and about the stove G' , whereby it is heated and is passed into the room at the base of the jacket, as indicated by the arrow in Fig. 7. Obviously the principle is the same exactly whether the emission end of a branch pipe discharges adjacent to a radiator to be heated or over a heating-stove for the same purpose. In the latter method the fresh air is forced into the room in a heated condition adjacent to the floor, the air of course rising, so that heated air is disseminated throughout the room.

The operation of the device will now be understood. Water is fed into the cleansing device through the inlet water-pipe leading thereinto, the amount of water being readily
 5 controlled by the valve in the water-pipe. When the fan-blower is in operation, the air is forced downward through the upper end of the pipe B into the cleansing device, the water passing with the air-current downward
 10 from shelf to shelf through the cleansing device, whereby cinders, dust, and other impurities are effectually eliminated from the air, while at the same time, especially in a hot day, the water is vaporized and carried
 15 with the air from the cleansing device to be disseminated with the air into the rooms to be ventilated, the added moisture very materially assisting to reduce the temperature in the room and to freshen the atmosphere.
 20 When it is desired to heat the air, the heating device hereinbefore described is put into operation in the usual way, the air admitted into the room being passed thereabout or therethrough, so as to be heated and disseminated under pressure into the room in a heated
 25 condition, as already described. By means of the nozzles heretofore mentioned the air may be forced into a room from different nozzles in as many different directions as there
 30 are nozzles, whereby the air may be thoroughly agitated and commingled with that in the room without producing a draft.

The provision of a system or method whereby pure air may be admitted into a room in
 35 a heated condition independent of a furnace, the air being heated by coming into contact with a heater located in the apartment into which the air is admitted, is a very important one, the air being controlled by valves or dampers B⁹ in the pipes B². It is well understood that many buildings and other structures are not equipped with a furnace, and it
 40 might be wholly impracticable to introduce a furnace for heating the apartments. In other locations and under other circumstances it may be impracticable to connect the ventilating system with a furnace, so as to heat the fresh-air supply thereby prior to its introduction into a given apartment; but by my improved method wherever a room is furnished
 50 with a heater located therein I am enabled by leading the terminal end of my fresh-air-supply pipe adjacent to the heater to heat the fresh-air supply by passing it about the heater
 55 before it passes thereby into the room, and I

am enabled to do this also without having the moisture dried or driven out of the air, as would be the case where the air is heated by a furnace. Of course in the summer-time, when the radiators or other heaters located
 60 in the given apartments are not in use, the ventilating system may continue to work as before.

I prefer that the chamber of the cleansing device C shall be considerably enlarged relative to the dimensions of the pipe B, so that its sectional area will be much larger than a corresponding sectional area of the pipe B, so that the velocity of the air through said chamber will be materially reduced to permit the
 70 more thorough commingling of the water with the air.

What I claim as my invention is—

1. The method of ventilating, which consists in forcing into an apartment streams of
 75 air at varying angles to one another whereby air-pressure from several streams in the same direction is avoided, as set forth.

2. A system of ventilation, which consists in an induct-pipe; a blower; an educt-pipe
 80 from such blower; and branch pipes leading from the educt, each branch pipe provided with an outlet, the several outlets being adjustable at varying angles to one another whereby the streams of air may be forced out
 85 at varying angles to one another and draft avoided, as set forth.

3. The combination of an air-induct and an air-educt, and a blower between them, of
 90 an air-supply pipe leading from the educt-pipe and having branch pipes, the latter being provided with nozzles or outlets which are adjustable on the branch pipes, whereby air may enter an apartment in streams of varying
 95 or different directions, as set forth.

4. In a ventilating system, the combination with an air-supply pipe, of an adjustable nozzle located at the end of the supply-pipe, said
 100 nozzle constructed of a plurality of sections articulated together, a guideway, an air gate or slide, and means to prevent the removal of the slide from the guideway, substantially as set forth.

In testimony whereof I sign this specification in the presence of two witnesses.

JOSEPH MCCREERY.

Witnesses:

N. S. WRIGHT,
 M. A. MARTIN.