C. H. SMITH.

HEATING AND VENTILATING SYSTEM.

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1,024,035.

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Fig. 1.

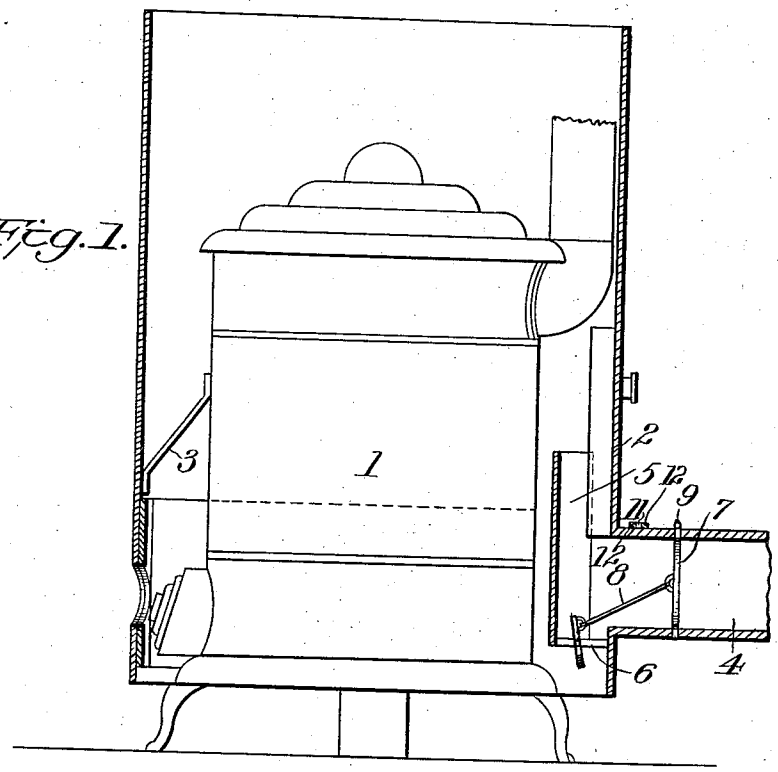
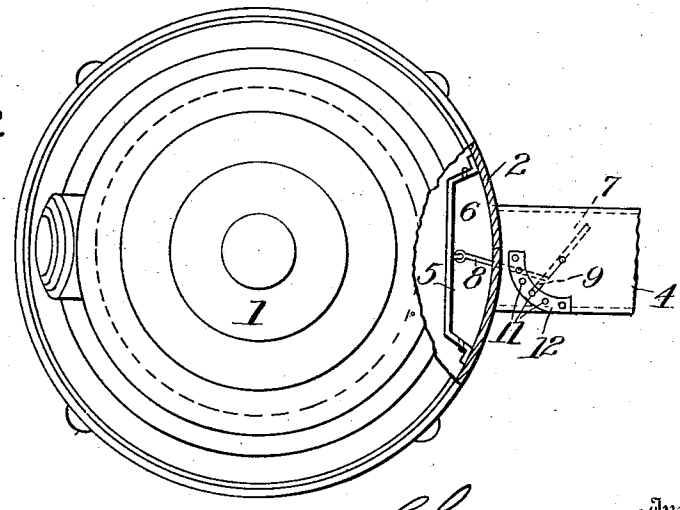


Fig. 2.



Witnesses

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HEATING AND VENTILATING SYSTEM.

1,024,035. Specification of Letters Patent. Patented Apr. 23, 1912.

Application filed March 9, 1909. Serial No. 482,300.

To all whom it may concern:

Be it known that I, CHARLES H. SMITH, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Heating and Ventilating Systems, of which the following is a specification.

This invention relates to heating and ventilating systems.

In living and school rooms and also in auditoriums, the breathing of persons therein frequently befouls the air, and especially is this true when the windows are closed. When the windows are closed there is no draft, and consequently not a proper circulation of air in the room.

It is therefore one object of my invention to provide for the admission of atmospheric air into the room without opening windows. and cause the atmospheric air to bceome intermingled with the warm air in the room and evenly distribute the commingled air throughout the room.

Another object is to provide for a syphonic draft of atmospheric air into the room and cause it to flow over the heating means and thereby become highly heated so that as the heated purified air seeks the ceiling and spreads itself over the upper portion of the room, it gradually settles to the floor to take the place of air being drawn off by the inwardly and upwardly directed cold air current.

A still further object resides in the provision of an open ended jacket adapted to be associated with a stove, radiator, or other heater in such a way as to provide for a rotation or circulation of air in the room to insure its proper distribution throughout the room, there being means provided whereby the air of the room in its rotation may be purified by the commingling therewith of fresh air drawn into the room from outside of the building, the admission of cold air being regulated according to required conditions.

With the above and other objects in view, the present invention consists in the combination and arrangement of parts, hereinafter more fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes may be made in the form, proportion, size and minor details without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a vertical sectional view of my invention, the heating means being shown in elevation. Fig. 2 is a top plan view partly in section.

Referring now more particularly to the accompanying drawings, the reference character 1 indicates a stove or any other suitable type of heating means, surrounding which and in spaced relation therewith is supported an open ended jacket 2, the jacket having its lower end terminating short of the floor and being supported in any suitable manner, one means of supporting the jacket residing in suitable brackets 3 secured to the jacket and to the stove, as shown.

The heat radiated from the heating means draws the air of the room upwardly from the floor and the air passes outwardly from between the heating means and the jacket at the upper end of the latter. The result is that there is a constant rotation or circulation of air in the room whereby it is properly and efficiently distributed throughout the room.

By virtue of the fact that the lower end of the jacket terminates short of the floor, there is a slight deflection of heat at the lower end of the jacket, whereby persons may readily warm their feet, and especially is this an advantage when the system is employed in school houses.

In order to purify the air of the room without necessarily opening windows, I provide an intake pipe 4 leading from the outside of the building and communicating at its inner end with a cold air box 5, whose upper end is provided with an opening and whose lower end is provided with a valve 6, there being a valve 7 in the intake pipe 4 which has connection with the valve 6 of the cold air box 5 through the instrumentality of a link or other suitable connection 8. I connect these two valves together so that when the intake valve is operated the cold air box valve may be operated simultaneously therewith and according to the adjustment of the intake valve.

When the intake valve is completely closed as shown in full lines in Fig. 1, the cold air box valve is wide open as shown in full lines in Fig. 1 so that the rotation of air between the heating means and the jacket will not be diminished, but will have its normal capacity. When the cold air cur-

rent is diminished by partly closing the valve of the intake, the cold air box valve is opened proportionately to preserve the full rotation capacity or flow of air through the interspace between the heating means and the jacket.

To insure positive positioning of the intake valve in its various adjusted positions, I provide the same with an arm 9 provided with a finger 10 adapted to engage interchangeably in the series of perforations 11 in the curved plate 12 on top of the intake.

What is claimed is:—

1. In a heating and ventilating system, a heating means, an open ended jacket surrounding the heating means in spaced relation thereto to form an air chamber between the heating means and the jacket, a cold air intake pipe communicating with the air chamber and adapted to convey cold air from an external source to the air chamber, a cold air box located in the cold air chamber and with which the cold air intake pipe communicates, the upper end of the cold air box being open and the lower end of the cold air box projecting below the cold air intake pipe and being open and at its lower end provided with a valve, said valve, when open, permitting passage of the air of the room through the box and the air chamber, said cold air intake pipe having a valve, and a connection between said valves so arranged that closing of the cold air intake pipe valve or partial closing of it will open the cold air box valve accordingly.

2. In a heating and ventilating system, the combination with the heating means, of an open-ended jacket surrounding the heating means to provide an air chamber, an open-ended valved cold air box arranged in the air chamber and having communication at each end with the latter, a valved cold air intake pipe communicating with said box to deliver air from an external source to the box from which latter it may pass into the air chamber through the upper end of the cold air box, the valve of the cold air chamber being located at the lower end thereof, and a connection between said valves so arranged that closing of the cold air intake pipe valve or partial closing of it will open the cold air box valve accordingly.

3. In a heating and ventilating system, a heating means, a jacket surrounding the heating means to form an air chamber, a cold air box disposed in the air chamber, said cold air box being open at its upper and lower ends, an intake pipe leading from an external source and communicating with the cold air box to deliver air to the latter from which the air passes into the air chamber from the upper end of the cold air box, a valve located at the lower end of the cold air box, a valve located in the cold air intake pipe, and a connection between said valves so arranged that closing movement of the intake pipe valve will move the cold air box valve to a corresponding open position whereby, if the cold air box valve is completely opened, the full capacity of air through said air chamber may be maintained and the temperature of the air chamber air varied.

4. In a heating and ventilating system, a heating means, a jacket surrounding the heating means to form an air chamber, a cold air box disposed in the air chamber and being open at its upper and lower ends, an intake pipe leading from an external source to the cold air box and communicating therewith to deliver cold air to the cold air box from which it may pass through the upper end into intermingling relation with the air of the room which passes continually through said air chamber, a valve in the cold air box at the lower end of the latter to open and close the lower end thereof, a valve in the cold air intake pipe, and a connection between said valve so arranged that closing movement of the intake pipe valve will move the cold air box valve to a corresponding open position, whereby, if the cold air box valve is completely open, the full capacity of flow of air through said air chamber may be maintained and the temperature of the air chamber air varied, a curved plate mounted on the intake pipe and having apertures, and an arm having connection with the intake pipe and provided with a finger adapted to interchangeably engage said apertures to hold the valves positively in adjusted position.

5. In a heating and ventilating system, a heating means, a jacket surrounding the heating means to form an air chamber, a cold air box disposed in the air chamber and open at its upper and lower ends for communication with the air chamber, an intake pipe leading from an external source and communicating with the cold air box to deliver cold air to the latter for passage through the upper end of said box into intermingling relation with the air which passes continually through the air chamber, a valve in the lower end of the cold air box to open and close the lower end of the latter, a valve in the intake pipe to open and close the passage therethrough and a connection between said valves so arranged that a closing movement of the intake pipe valve will move the cold air pipe valve to a corresponding open position, whereby, when the cold air box valve is completely open, the full capacity of flow of air through said air chamber may be maintained and the temperature of the air chamber air varied, and means constructed and arranged to positively hold the valves in different positions.

6. In a heating and ventilating system, a

heating means, a jacket surrounding the heating means to form an air chamber, a cold air box disposed in the cold air chamber and open at its upper and lower ends, an intake pipe communicating with the cold air box to direct cold air to the latter from which it may pass through the open upper end of the box into the cold air chamber, a valve mounted at the lower end of the cold air box to swing on a horizontal axis to open and close the lower end of the box, and a valve in the intake pipe mounted to swing on a vertical axis to open and close the passage through said pipe, a link having pivotal connection with said valves, and an arm having connection with the intake pipe valve to operate the latter, said link effecting operation of both valves simultaneously and so arranged that when one valve is closed or partially so the other valve is open or partially open, whereby upon completely closing one valve the other may be completely opened.

In testimony whereof I affix my signature, in presence of two witnesses.

CHARLES H. SMITH.

Witnesses:
B. H. BOWLER,
E. L. DEPUE.