L. W. COOLEY.

Heater for Dwellings.

No. 220,346. Patented Oct. 7, 1879.

Fig. 1.

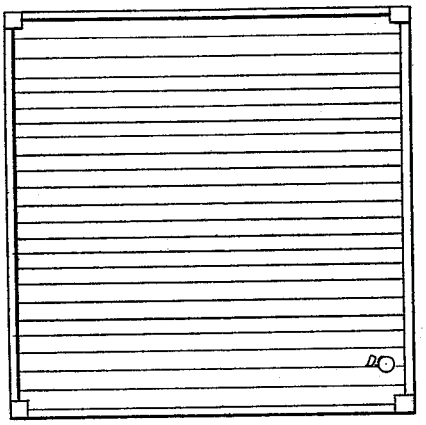


Fig. 2.

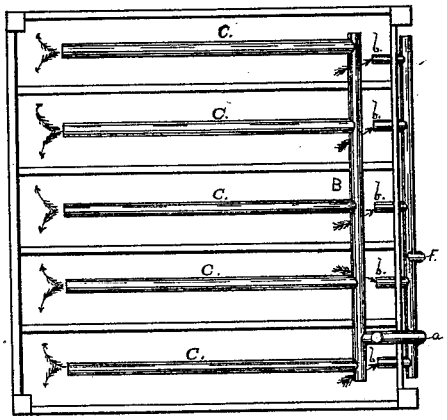
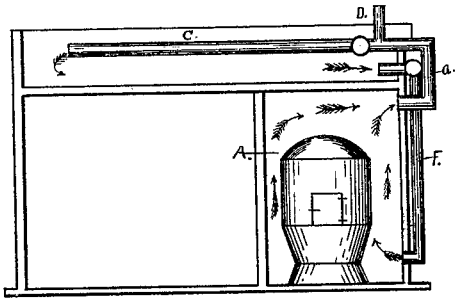


Fig. 3.



Witnesses;
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UNITED STATES PATENT OFFICE.

LESTER W. COOLEY, OF BINGHAMTON, NEW YORK.

IMPROVEMENT IN HEATERS FOR DWELLINGS.

Specification forming part of Letters Patent No. **220,346**, dated October 7, 1879; application filed August 18, 1879.

To all whom it may concern:

Be it known that I, LESTER W. COOLEY, of Binghamton, in the county of Broome and State of New York, have invented a new and useful Improvement in Heating Dwellings and Public Buildings, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to the introduction of heated air into the spaces between the floor and ceiling, and the discharge of the cold air into the lower section of a hot-air chamber below.

The object of the invention is to equalize the temperature in all parts of the room from the floor to improve the ventilation by the expulsion of impure air under as well as above the floor.

My invention consists in the combination and arrangement of conducting-pipes placed between the floor and ceiling under it in such a manner that currents of hot air from a heater or hot-air chamber below shall circulate freely under every part of the floor, while the cold and vitiated air passes down into the lower section of said chamber, thus establishing the usual currents of hot and cold air.

Figure 1, in the accompanying drawings, is a plan view of the floor in position. Fig. 2 is a plan view with the floor removed, showing the arrangement of the pipe-conductors. Fig. 3 is a vertical section to show the position of the entrance of the pipes into the hot-air chamber, and the direction indicated by arrows of the currents of air.

A is the hot-air chamber, which may be heated by a stove or the ordinary furnace. The heat is conducted from the upper section of the chamber by the pipe *a*, which connects with the pipe B, placed across the joists, which are notched for its reception. The ends of this pipe are closed and extend nearly to the wall on each side. It also has openings between each joist for the reception of longitudinal pipes C, with open ends extending nearly to the end of the joist, as shown by Fig. 2 in the drawings. Near the connection of the pipes B and *a* is a heat-regulating valve, D, which is operated by a suitable appliance extending through the floor into the apartment above. Outside of the spaces under the floor is a pipe, E, of the same length of the pipe B and parallel with it. This pipe E has openings corresponding with those in the pipe B, having short tube-extensions *b* extending into the spaces under the floor, as shown in the drawings.

The pipe E is connected with the chamber A by a vertical pipe, F, entering the chamber nearly at its base or floor. When the temperature rises in the chamber A the heat passes up through the pipe *a* into the transverse pipe B, thence through the longitudinal pipe C, and discharging into the spaces under the floor, thus expelling the cold or vitiated air through the tubes *b* into the pipe E, thence through the vertical pipe F into the heater A.

This arrangement may be applied to any one or all the apartments of the building, and, if required, the ordinary register may be used.

I do not claim, broadly, the introduction of hot air under the floor, for I am aware that has been accomplished by a ventilating apparatus patented July 11, 1865, by which hot air was conveyed from a chamber around the furnace to a space under a tiled or metallic floor, then passing by another flue back to the chamber below. This apparatus has two hot or warm air chambers separate and distinct. The air in one is heated by contact with the hot surface of the iron, being excluded from the room, while the air from the other is warmed entirely by contact with the outer surface of the brick or earthen wall or casing, and is conducted into the room for respiration, while by my arrangement the heated air is simply conducted through a series of connected flues, which insures a complete circulation under every part of the floor, when it returns to the chamber below, as before described. When a register is used it should remain closed until the floor becomes sensibly warm, at which temperature the foul air returns to the chamber, as described. The heated air may then be admitted into the room.

A thermo-circulating ventilating apparatus was patented November 8, 1864, by which the

air of each apartment was made to circulate down into a space around a furnace, and then return by a different flue having apertures near the floor connecting with flues leading to external air, to carry off the foul air or to regulate the heat, while by my arrangement the temperature is regulated by a valve, as before described.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination and peculiar arrangement described of the conducting-pipes B and C, so that the heated air may freely circulate under every part of the floor, cold-air pipe E, placed outside of spaces under the floor and provided with tubes *b* connecting with chamber A by pipe F, and heat-regulating valve D, all constructed substantially as shown and herein described, for the purpose set forth.

LESTER W. COOLEY.

Witnesses:

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