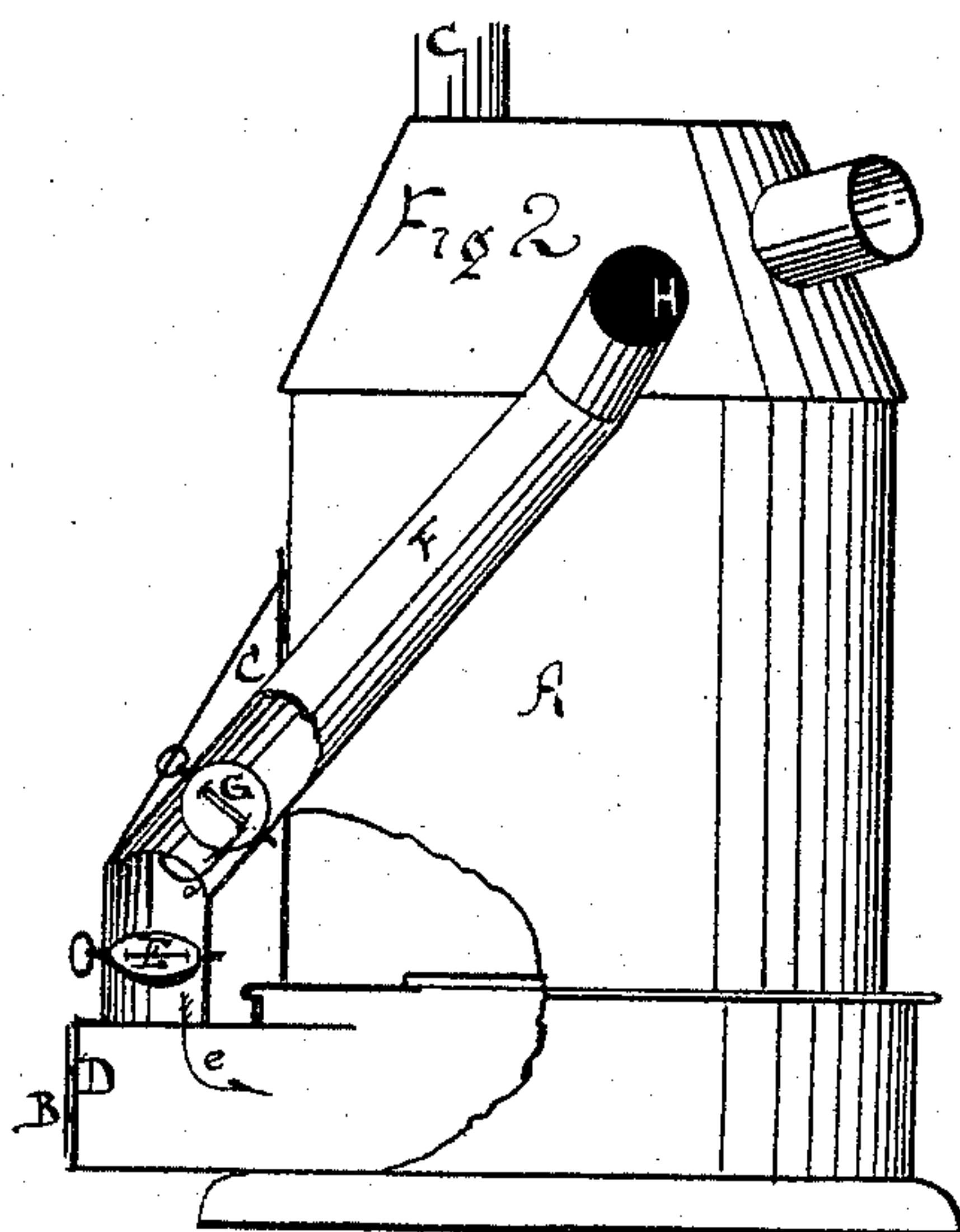
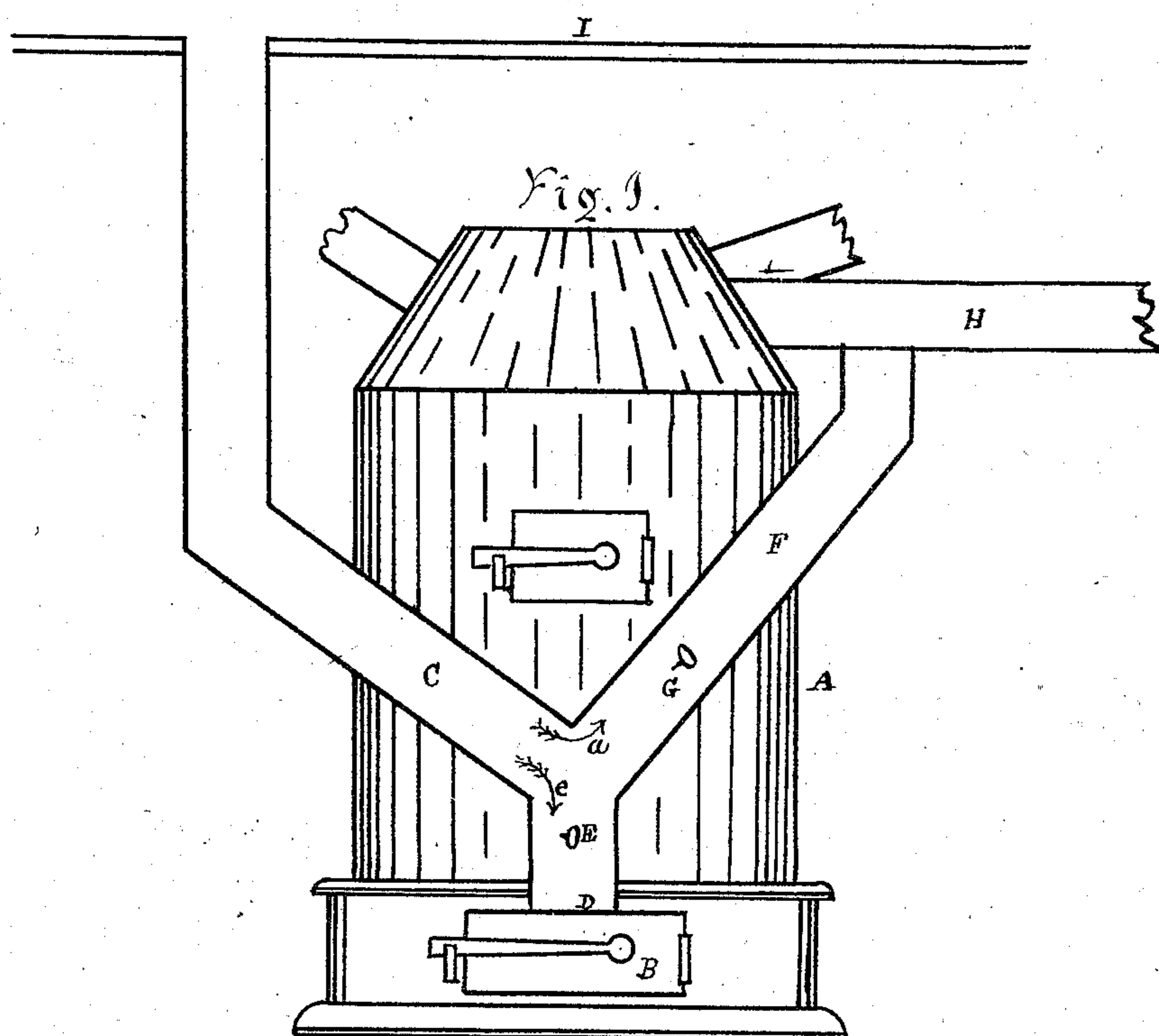


E. W. CRANE.
Heating Furnaces.

No. 137,598.

Patented April 8, 1873.



Witnesses
C. Rogers
J. Rogers.

Inventor
Elias W. Crane
By his attorney
Charles Rogers

UNITED STATES PATENT OFFICE.

ELIAS W. CRANE, OF ROSELLE, NEW JERSEY.

IMPROVEMENT IN HEATING-FURNACES.

Specification forming part of Letters Patent No. **137,598**, dated April 8, 1873; application filed September 18, 1872.

To all whom it may concern:

Be it known that I, ELIAS W. CRANE, of Roselle, in the county of Union and State of New Jersey, have invented a new and useful Improvement in Ventilating-Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, in which—

Figure 1 represents in front sectional elevation my apparatus. Fig. 2 is a side sectional elevation of my improvement.

My invention consists of a combined heating and ventilating furnace, wherein the air exhausted or withdrawn from the apartment to be ventilated may be caused to pass into said furnace to support combustion therein, or may be caused to escape directly to an exit-flue, as may be most desirable.

That others may fully understand my invention I will particularly describe it.

A is the furnace, which may be of any suitable and approved construction for heating air, which may be conducted therefrom by pipes, as shown in the drawing in the ordinary way. B is the ash-pan, and D the door in front of the same. The parts alluded to above do not require any more particular description, being common and well understood. I is the floor of an apartment to be ventilated. The pipe C joins an opening in said floor, which may be closed by a register, if desired, through which air is exhausted from said apartment. The pipe C extends down from said opening in the floor I to the ash-pit B of the furnace, which may be extended forward to receive said pipe, so that the fire within the furnace

may be supported by the cold air so drawn from the apartment above.

It will be observed that the air so exhausted from the apartment is that nearest the floor, and therefore the coldest therein, and it follows that the said apartment will thereby be maintained at a proper temperature with a diminished expenditure of fuel, because the cold air being removed from the floor will cause the warmer air near the ceiling to descend, and the temperature will thereby be equalized. But it is not always desirable to supply the burning fuel with as large a volume of fresh air as it is required to withdraw from the apartment to be ventilated, and I therefore, say at the point *e*, connect a pipe, F, to the pipe C, and lead said pipe F to the smoke or other exit-flue H, into which the air-current flowing through C will be conducted. This will cause the draft of ventilation to be uniform and uninterrupted in its flow, and permit a greater or less volume of it to pass into and through the fire within the furnace. The dampers E and G place the volume of escaping air entirely under control, either as to the direction of its escape or the volume permitted to escape.

Having described my invention, what I claim as new is—

In combination with the air-heating furnace A, the ventilating-pipes C F provided with dampers E G, so that the flow of exhaust air may be conducted wholly or partially into the ash-pit B or flue H, as required.

ELIAS W. CRANE.

Witnesses:

C. ROGERS,
ISAAC COLEMAN.