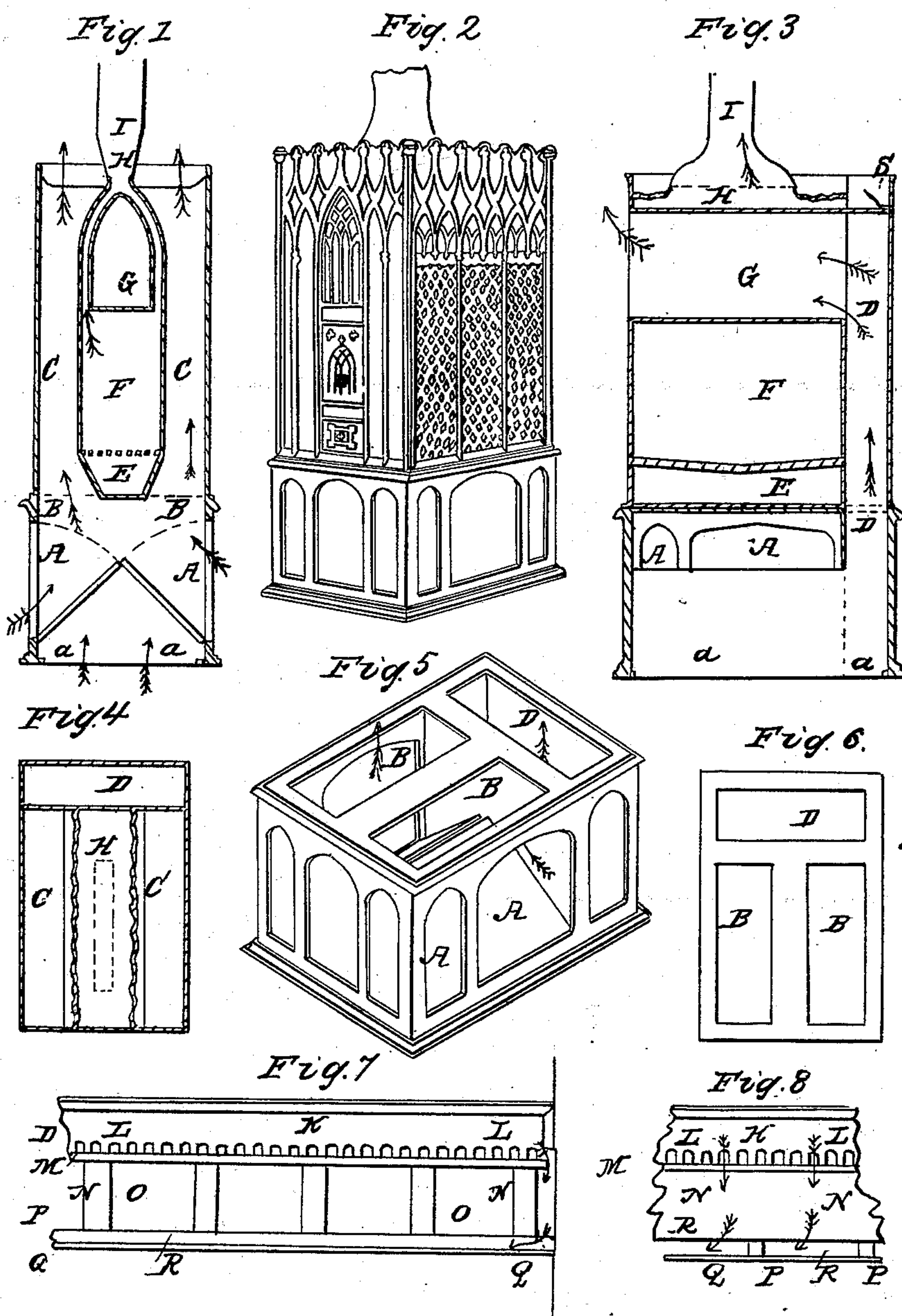


H. RUTTAN.
Heating Stove.

No. 8,109.

Patented May 20, 1851.



UNITED STATES PATENT OFFICE.

HENRY RUTTAN, OF COBURG, CANADA WEST.

VENTILATING-FURNACE.

Specification of Letters Patent No. 8,109, dated May 20, 1851.

To all whom it may concern:

Be it known that I, HENRY RUTTAN, of Coburg, in the county of Northumberland, Canada West, have invented certain new and
5 useful Improvements in Heating and Ventilating Stoves, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known,
10 and of the usual manner of making, modifying, and using the same, reference being had to the accompanying drawing, in which—

Figure 1 is a vertical cross section; Fig. 2, a perspective view; Fig. 3, a vertical longitudinal section; Fig. 4, horizontal section,
15 and Figs. 5 and 6, perspective and plan of base.

My invention is intended to supply dwelling houses and other apartments with a
20 supply of pure and fresh air, at the same time that it also warms such apartments; and I do hereby declare that the following is an exact and full description thereof.

This stove is constructed of metal and
25 may be formed of any convenient size, and to burn either coal or wood fuel. It may be ornamented with a casing or may be used without a casing; it may be used without a base or pedestal Fig. 5 or the bed or bottom
30 plate Fig. 6 may be laid directly upon a floor through which the external air may be brought or merely receive the air of the apartment around it as in the case of a common stove. It may also be used by placing
35 the whole upon the top of a pedestal or base Fig. 5. Five different plates form the fire chamber, viz, two side plates, two end plates and the bottom, which is also the bottom of the ash-pit is composed of that part of the
40 bottom-plate which is left between the apertures B B Fig. 6. The side plates are voluted for the purpose of increasing the surface and at the same time preventing the metal from cracking by expansion. The
45 fire chamber by being diminished in shape at the bottom and top is calculated to present the least possible obstacle in the free current of the air upward as seen in a cross section Fig. 1. This fire-chamber is further
50 constructed of such a height and width as to admit the construction of and placing within it longitudinally directly over the fire a metal cylinder or oven G, Figs. 1 and 3. This cylinder or oven is always open at both
55 ends with the exception, if preferred, of an

open work and ornamental door for appearance sake. It is made of such a diminished size (lying the whole length of the fire chamber) as always to be wholly enveloped in the whole heat of the machine, the fire and smoke
60 passing on its outside and between it and the inside of the side plates of the fire-chamber see Fig. 1; so that besides the quantity of air which passes up through the apertures B B in Figs. 1 and 6—another quantity
65 passing up through D D Figs. 3 and 6 is also warmed by being drawn through this cylinder or oven as represented by the arrows in Fig. 3, and thus is attained the double advantage of the warmth from each of the
70 currents of heat, one on either side of this cylinder running between two currents of cold air. The bottom or bed plate above mentioned (Fig. 6) is a single iron plate with
75 three apertures one upon each side B B through which is admitted the cold air from beneath (either from the apartment or from the external atmosphere at pleasure) along
80 the outside of the voluted side plates of the fire chamber, and one aperture made transversely at the end of this plate D the air through which passes upon the outside and
85 along the end-plate of the fire-chamber and by the construction of the sheathing, as at S in Fig. 3 the air may let directly into the room through the aperture D or prevented
from flowing out into the apartment until its passage through the cylinder G, Fig. 3.

The grate (see between E and F in Fig. 3)
90 is sunken in the middle so as that when wood fuel is used a hollow space shall be left, thus facilitating its being kept clear and also forming a chamber in which the combustion air may be raised in temperature the
95 more readily to combine with the gas of the fuel.

An ornamental casing covers the whole of this machine (hitherto described) from sight (with the exception of the front plate
100 which is made to correspond in appearance with the casing) and of course incloses the whole of the three apertures in the bottom or bed-plate before spoken of. When within and against this ornamental casing is
105 placed a sheathing of bright metal, having a strong reflective power (in this case common tin is used) for the double purpose of preventing an inconvenient local heat to persons near the stove and, which is of
110 much more consequence, acting as an ex-

hausting flue by drawing up a much greater quantity of air under and along the hot iron plates from bottom to top, than could be gotten near these plates in any other way: and the higher this sheathing is carried the more powerful as a heater will be the machine.

As before stated this stove may be set directly upon the floor of an apartment and receive the external or internal air either from the room in which it is placed or from a lower apartment or through the wall of the building and between the joists, but the most efficient way I apprehend will be to place the whole upon a base or pedestal Fig. 5 into which the air, either external or internal, may be introduced either by the side or end or through the bottom of the pedestal, and so pass up through the apertures in the bottom or bed plate B B and D Fig. 6. Suitable valves or doors may be so constructed and placed as to regulate the whole flow of the air. For example, when the external air is to be brought from beneath, there are movable doors or valves hinged at the bottom or other convenient way for all the apertures A A Fig. 5 and one at the back end under the apertures D, so that the external air may be entirely shut off or let on at pleasure—and so also of the internal air—the measure of the diminution of the external air being (in this case) that of the increase of the internal air and vice versa. And in this way also this machine may be used either as a ventilating stove or as a common heater—this power, however, in the latter case being more than

quadrupled by the extension of the sheathing upward as above stated.

The power of this machine as a ventilator is equal to the throwing 500 cubic feet of air per minute where the building is built for it, or when there happens to be flues (say common fire places) in a house already built, equal to the exhaustion of that quantity of air.

When a house is built for ventilation the mephitic and effluent air should be exhausted or taken out under the floor, which may be done in the manner pointed out in my patent already obtained and similar to the manner indicated in Figs. 7 and 8. This is easily and cheaply accomplished in the case of a school house or other apartment standing upon or near the ground all that is to be done is to open the exhausting flue or flues under the floor, making any convenient openings for the air to pass around the room between the floor and the wall downward.

What I claim is—

1. The arrangement and mode of operating the valves A A in reference to the air heating space around the stove by which the amount of air from within and without is graduated by a single movement.

2. I claim also the arrangement of the horizontal air heating trunk the vertical D leading thereto and its valve S in combination with the air heating space G.

H. RUTTAN.

In presence of—

JAMES MONK,

J. J. GREENOUGH.