(No Model.)

H. L. REED.

RADIATOR VENTILATOR.

No. 440,964. Patented Nov. 18, 1890.

Fig. 1.

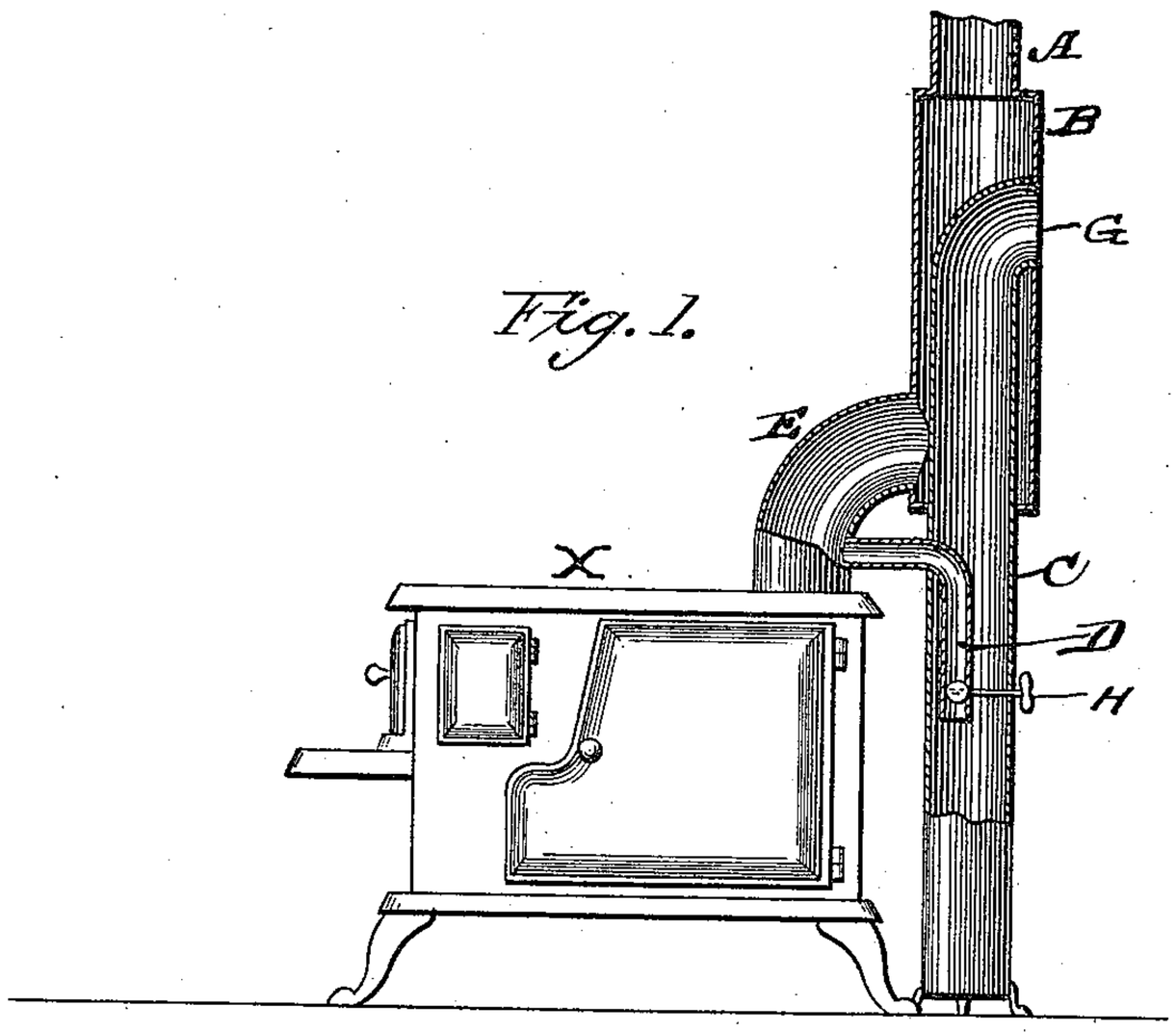
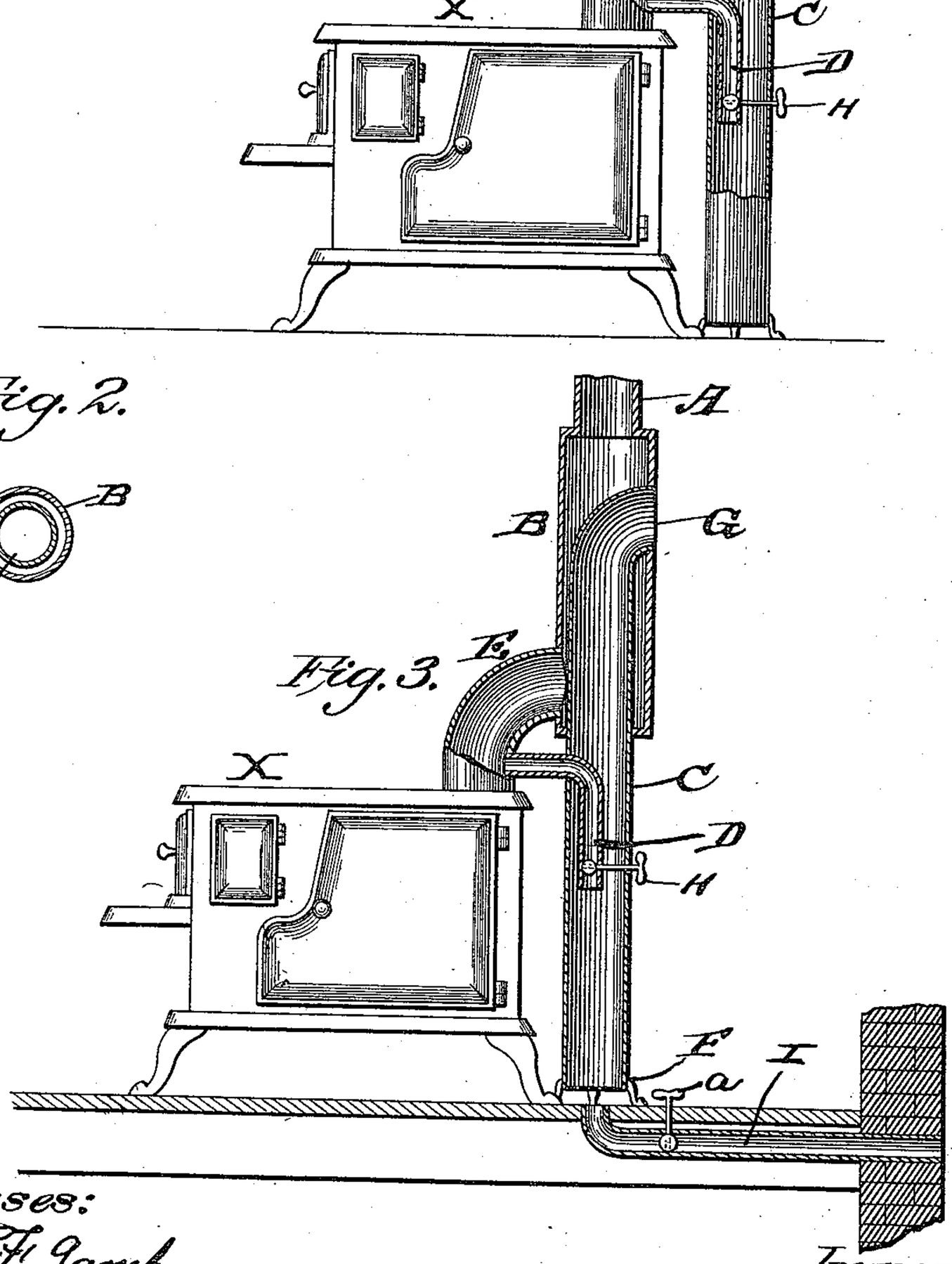


Fig. 2.

Fig. 3.



Witnesses:
Chester F. Gamb
Jedediah Bottsford

Inventor:
Herbert L. Reed

UNITED STATES PATENT OFFICE.

HERBERT L. REED, OF WAUPACA, WISCONSIN.

RADIATOR-VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 440,964, dated November 18, 1890.

Application filed April 21, 1890. Serial No. 348,941. (No model.)

To all whom it may concern:

Be it known that I, HERBERT L. REED, a citizen of the United States, residing at Waupaca, in the county of Waupaca and State of Wisconsin, have invented a new and useful Radiator-Ventilator, of which the following is a specification.

My invention relates to improvements in radiator-ventilators in which the ordinary pipe that conveys the gas and smoke from a stove or heater contains a fresh-air pipe so inserted that it receives the air when cold and discharges it warmed into the room; and the objects of my improvement are, first, to utilize the maximum amount of heat from the fuel; second, to provide a rotating current of air in the room; third, to take the cold air from the floor and discharge it into the room warmed, and, fourth, to provide for ventilating the room and at the same time heating the room above. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the entire mechanism; Fig. 2 is a cross-sectional view of the pipes; and Fig. 3 is also a vertical sectional view of the device, showing a cold-air pipe sometimes used in connection with my device.

Similar letters refer to similar parts throughout the several views.

The ordinary stove or heater is shown at X, from which the smoke, gas, &c., pass through the ordinary pipe at E, (shown in the cut at six (6) inches in diameter.) This pipe is enlarged so that its diameter at B is 8.48 inches, and that reduced again at A to its original size of six inches. Into the vertical pipe from its bottom end and at its enlarged portion is inserted a cold-air pipe C, six inches in diameter, resting on a perforated base on the floor at F and passing out of the enlarged portion of B at G. Preserving this ratio these pipes can be increased or dimished to any desired size.

The cold-air pipe C is provided with and contains an inspirator-pipe D, being one-third ($\frac{1}{3}$) of the diameter of C, opening at its upper end into E at the point of concentration of flame, heat, smoke, gas, &c., and opening at its lower end into the pipe C. This inspirator-pipe D contains a damper H, that can be so operated as to partially or entirely close or open the pipe D, as desired. By means of this mechanism, if at any time the heat and flame at E fail to create a strong enough ascending current in C, the damper H may be opened and allow the partial current to pass into the flame at E, and thus produce more perfect combustion, a stronger flame and heat, and serve not only to stimulate the intake at F, but also to increase the current at G in a corresponding ratio. It is readily seen that the combined radiating-surfaces of B and C are equal to 2.42 times the radiating-surface of A alone, and that without consuming any more fuel. If desirable, the reduced portion of the pipe B may extend through a thimble in the ceiling. The opening G, or another one similar, can be made in the room above, and thus provide a heater for that floor. The opening G and the second one in the room above can be operated so as to open and close at will, and the system can thus be extended from one floor to another.

Sometimes I use a pipe I, having a damper *a* for introducing cold air from without the building into the room, and the inner open end *b* being directly beneath the perforated bottom of the pipe C, supplies a current of fresh air to said pipe.

I am aware that prior to my invention radiator-ventilators have been made combining various systems of pipes and dampers with the ordinary smoke pipe or flue. I therefore do not claim such a combination, broadly; but,

What I do claim as my invention, and desire to secure by Letters Patent, is—

The combination of the pipe E, pipe or drum B, pipe A, the pipe C, having a perforated bottom, and the pipe D, said pipe D communicating with the pipes E C and provided with a damper, all as shown and described.

HERBERT L. REED.

Witnesses:
CHESTER LAMB,
HAZELTON HARIS.