BLEECKER & VOSE.

Cooking Stove.

No. 5,954. Patented Dec. 5, 1848.

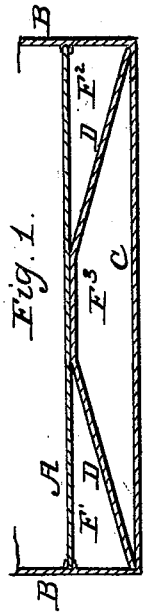

Fig. 1.

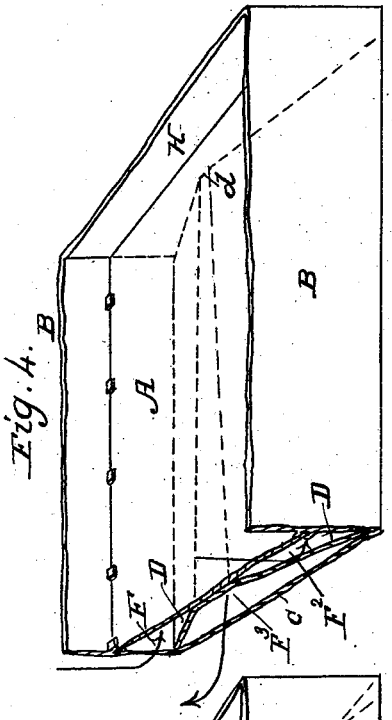

Fig. 4.

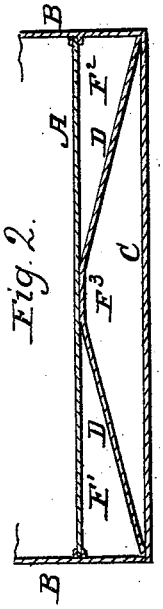

Fig. 2.

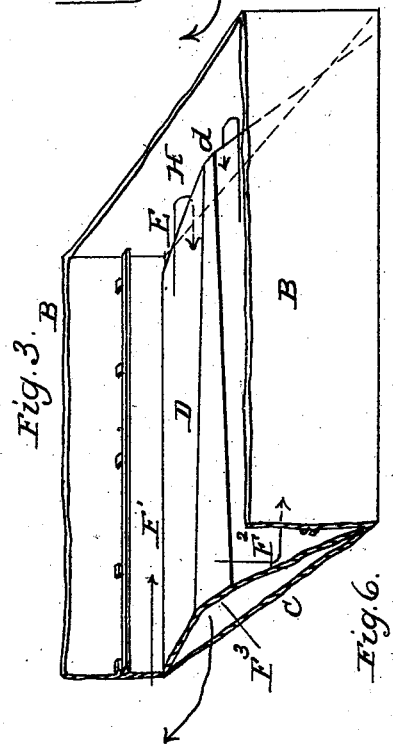

Fig. 3.

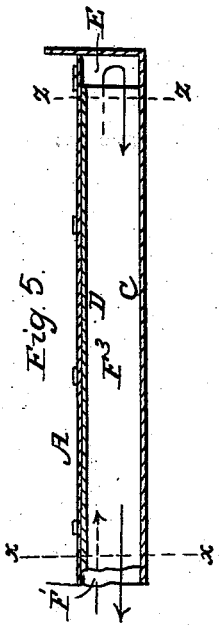

Fig. 5.

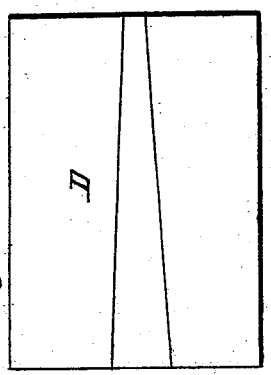

Fig. 6.

UNITED STATES PATENT OFFICE.

W. E. BLEECKER AND S. D. VOSE, OF ALBANY, NEW YORK.

STOVE-FLUE.

Specification of Letters Patent No. 5,954, dated December 5, 1848.

To all whom it may concern:

Be it known that we, WILLIAM E. BLEECKER and SAMUEL D. VOSE, of the city and county of Albany and State of New York, have invented a new and useful Improvement in Construction of Flues for Imparting and Conveying Heat in Cooking-Stoves, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 represents a vertical section of the flues near the end into which the current of smoke and heated air is admitted, on the line *x x* of Fig. 5. Fig. 2 represents a vertical section of the flues at the end where the current reverts, on the line *z z* of Fig. 5. Fig. 3 represents a perspective view of the flues and reverting chamber, showing the angular plate that divides the bottom flue into three angular flues—the bottom plate of the oven being removed. Fig. 4 represents a perspective view of the flues and reverting chamber—the bottom plate of the oven being in its proper place. Fig. 5 represents a vertical longitudinal section showing the central flue and reverting chamber. Fig. 6 is a plan of the angular division plate.

The arrows show the direction of the draft.

Similar letters in the several figures refer to corresponding parts.

The invention and improvement for which a patent is solicited, consists in the mode or arrangement of flues for accomplishing the following—viz—equal distribution of heat; increase of draft; and protection of the flue space from cold air.

The plate A represents the bottom of the oven of a cooking stove which is to be heated.

B B are the two vertical parallel side plates that form the sides of the chamber, containing the three flues F^1 F^2, F^3, beneath the oven.

C is the bottom plate of the chamber containing the aforesaid flues.

D is the division plate that divides the aforesaid chamber into three angular flues gradually increasing in size from the bottom of the diving flues where the smoke enters said angular flues to where it passes into the vertical ascending back flue that leads into the smoke pipe—said division plate being cast of an angular form as represented in Fig. 6. The said angular plate is made of less length than the bottom plate C in order to form the reverting chamber E, at the end of the stove.

The current of heated air is admitted into the flues F^1 F^2 from the diving flues, or other drafts, above the plate D, whence it proceeds to the reverting flue or chamber E, where it reverts and passes under the said plate D, through the flue F^3 in the direction of the arrows. At the inlets of the flues F^1 F^2 the current possesses the greatest intensity of heat and velocity, which intensity is gradually diminished till it issues into the flue leading to the escape pipe or chimney.

To distribute the heat more equally the inlets of the flues F^1 F^2 are made smaller than any other sections of the flues, and from these inlets the flues progressively enlarge. At the inlets, where the flues are smallest, the volume of heated air must necessarily pass more rapidly; and by reason of the contraction of the flues at the inlets, the absorbing surface is lessened; and as the current progresses its velocity is lessened and the absorbing surface increased. In this manner the heat is more equally distributed over the surface to be heated. The gradual enlargement of the flues from the inlets to the outlets also facilitates the draft. By reverting the heat over the entire breadth of the angular division plate it requires but a small space between the end of the division plate at *d* and the plate H of the reverting chamber to revert the entire volume of heat, which, practically, keeps it to the extreme front end of the oven plate. Equal distribution of heat in a direction across the current is secured by compelling the greatest proportion of heat to the sides. The side plates B B being exposed to cold air, the greatest heat is therefore forced to the sides to supply what heat may be lost by outward radiation, while the center is heated, in conjunction with flues F^1 F^2 by natural diffusion through the plate A, by the heat returning in flue F^3.

The principal protection from cold air is secured by protecting the conveying flues F^1 F^2 from contact with it, which is effectually accomplished (except at the sides B B). This is effected by returning the current of heat in the flue F^3 under the entire breadth of the flues F^1 F^2, so that the return heat radiates into the conveying flues F^1 F^2 and into the plate A.

This invention and improvement is not confined to straight lines, as curves may produce the same results; neither is it restricted to the exact angles and proportions laid down in the annexed drawings.

The invention claimed and desired to be secured by Letters Patent is—

The combination of two similar triangular conveying flues with a return flue underneath them, formed by a converging and diverging plate, in cooking stoves, as herein described.

WILLIAM E. BLEECKER.
SAML. D. VOSE.

Witnesses:
HARRY CAMP,
ISAAC MAYFIELD.