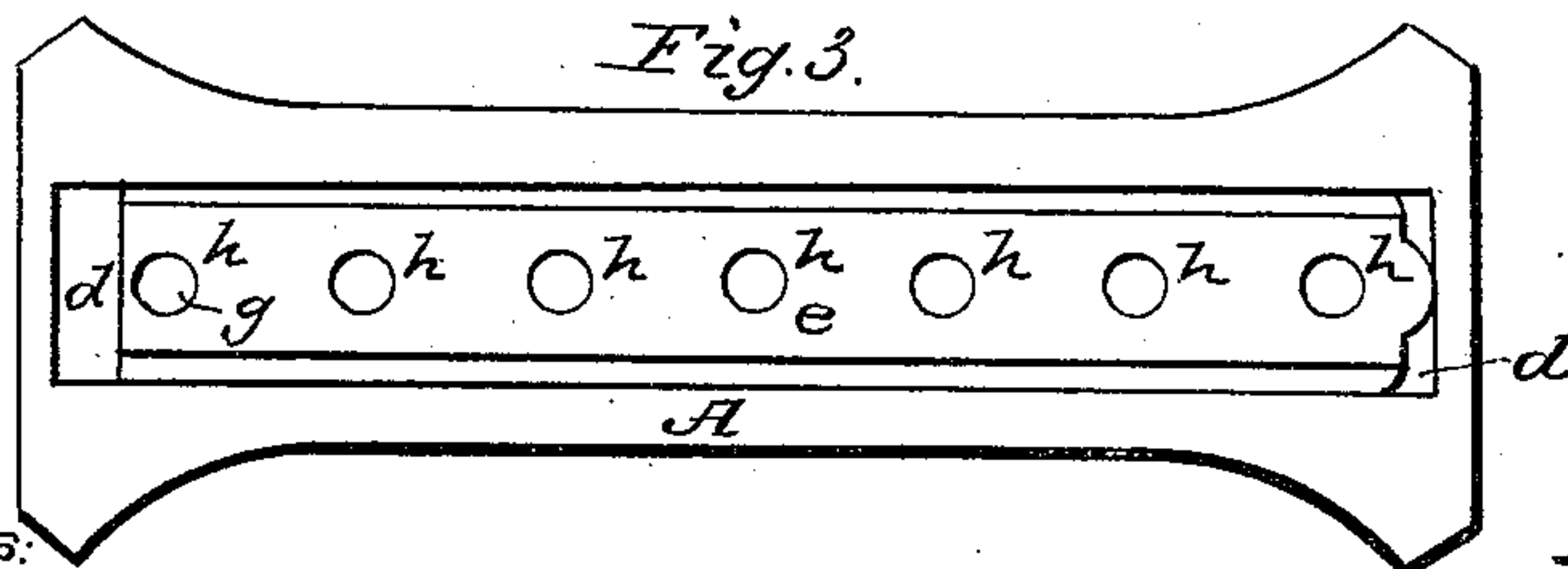
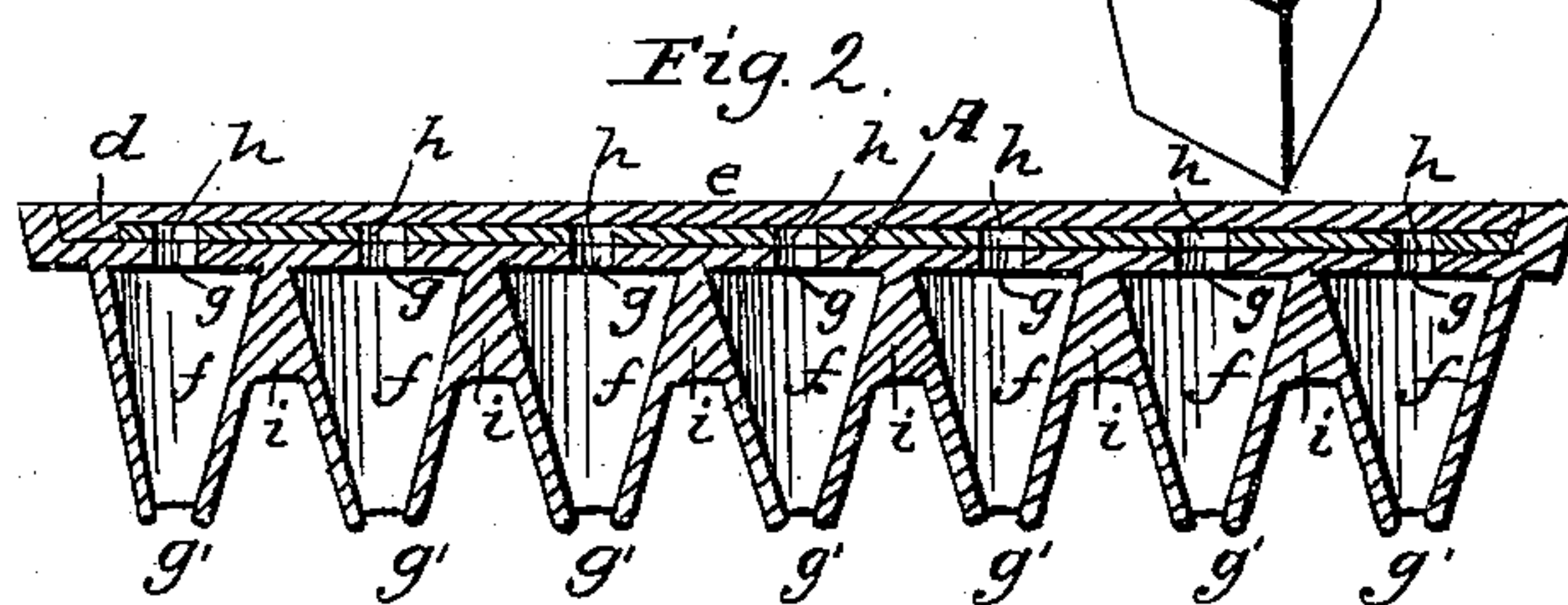


Cooking Stove.

Patented Sept. 6, 1859.



Witnesses:
Bry Trouton
Brotherney

Inventor:

Edward M. Mangle

UNITED STATES PATENT OFFICE.

EDWARD M. MANIGLE, OF PHILADELPHIA, PENNSYLVANIA.

STOVE.

Specification of Letters Patent No. 25,343, dated September 6, 1859.

To all whom it may concern:

Be it known that I, EDWARD M. MANIGLE, of the city of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Cooking-Stoves; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a perspective view of a cooking-stove with the improvement applied thereto; Fig. 2, a vertical longitudinal section, and Fig. 3, a top view, of the device constituting the improvement, like letters in the several figures indicating the same parts.

My invention relates to that class of cooking-stoves which are intended to inflame the combustible gases which arise from the burning fuel, by the introduction of fresh, warm air into or near the mouth of the main flue; and has for its object the production of this result in a more perfect manner than heretofore.

It consists in the construction and arrangement, substantially as hereinafter described, of a series of distinct, or uncommunicative, hollow, air-chambers, in combination with the cross-piece of the top-plate of a cooking stove, in such a manner that the said air chambers—having an opening above and below—shall each project from the lower side of the cross-piece, down into or near the mouth of the main flue of the stove and form a communication between the external air which is above the said cross-piece and the main flue below it; whereby I am enabled to produce a row of equal, uniform and distinct or independent streams of fresh, warm air in the most desirable and effective manner, across the mouth of the main flue, or from one side to the other of the same; and, at the same time, to provide more effectually against any overheating and consequent sinking or bending down of the cross-piece.

In the drawings—A, represents the improved cross-piece; B, the top plate of which the cross-piece forms a part, or to which it is attached or fitted so as to divide the usual opening in said plate into front and back pot-holes (substantially as shown in Fig. 1); and C, the mouth of the main flue. The said plate (A) is cast or constructed with a depression *d*, along in its

upper side, for the reception of the sliding plate, *e*, and from the under side of this depressed part (*d*) there projects downward, a short distance, into the mouth of the main flue (C), a row of distinct or uncommunicative, hollow, air chambers, *f*—each having a small hole, *g*, above, for the entrance of air through the cross-piece (*e*), and a similar hole, *g'*, below, for its discharge—in such manner that each of the said chambers when heated, in the operation of the stove, shall, irrespectively of each other, take in air from the outside of the stove and discharge it, warmed, into or near the mouth of the main flue (C) just above the usual fire-box.

The sliding-plate (*e*) is made about half an inch shorter than the depression (*d*), and is perforated so as to have a row of holes, *h*, whose diameters and distances apart correspond with those of the upper holes (*g*) in the said cross-piece (*e*), so that when one end of the said slide (*e*) is slipped into contact with the one end-boundary of the depression (*d*) their respective holes (*h* and *g*) shall be in juxtaposition with each other, as shown in the drawings, and allow the passage of air into and through the air chambers (*f*—*f*) below; and when the said slide (*e*) is moved so as to bring its opposite end into contact with the other end-boundary of the said depression, the spaces between the holes in the said plate shall cover the holes (*g*) in the said cross-piece (*e*) and, of course, prevent the entrance of air from above, into the air chambers (*f*—*f*); and consequently, by partially sliding the said plate (*e*) the holes (*g*) may be proportionally covered thereby and the amount of air desired to be admitted into the flue (C) through the air chambers (*f*—*f*), regulated accordingly, at one operation, as occasion may require. The exterior opposite sides of the said air chambers (*f*—*f*) are united together by the intermediating parts, *i*, of the casting, which are also, like the air chambers, united to the under side of the depression (*d*) and extend downward in connection with and along about half the length of the said air chambers—as shown in Figs. 1 and 2—thus together forming a stiffening support to the cross-piece, not liable to become red hot, and therefore most effectually preventing any sinking or downward bending of the same.

In the operation of this invention it will

be manifest that the air will become warmed during its passage through the heated chambers ($f-f$); and that the combustible gases arising from the burning fuel cannot enter
 5 any part of the main flue (C) without meeting with a sufficient supply of this fresh, warm air to inflame and support their combustion therein; and as the greatest amount of these gases is generated from freshly-
 0 added coal, and as the amount generated therefore diminishes as the ignition of the said coal proceeds, the supply of fresh air, for the combustion of the said diminished and diminishing amount of gases, should be
 5 reduced accordingly; and also be shut off entirely when combustible gases cease to arise from the burning fuel, because the admission of fresh air thus directly into the
 0 mouth of the main flue (C) without the possibility of its meeting combustible gas with which to combine and produce flame, would diminish, if not destroy, the legitimate draft of the stove and therefore do harm by cooling the oven around which the flue
 5 (C) passes. Hence the necessity of the perforated, sliding plate (e) whereby the operator, by simply moving the same longitudinally, is enabled to control, at pleasure, the amount of air passing through each air
 0 chamber ($f-f$) precisely to suit the amount of combustible gases generated and, finally, to shut it off entirely when no more of the said gases are generated, and so to pre-

serve the legitimate heat of the oven. The position and form of the air chambers 35 ($f-f$) also render them self-cleaning and, therefore, always free from dust or ashes. The peculiar mode of combination of the air-chambers ($f-f$), intermediating parts (i), and the under side of the cross piece 40 (A), also effectually secures this indispensable part of a cooking stove from sinking, as before stated; and the said cross-piece admits, as heretofore, of its being either
 45 cast in connection with the top-plate (B), or separately so as to be subsequently applied, as shown in Fig. 1, and is therefore equally applicable to stoves already in use.

Having thus fully described the construction and operation of my improvement, and 50 pointed out its peculiar advantages, what I claim as new therein and of my invention, and desire to secure by Letters Patent is,

The arrangement of the series of distinct or uncommunicative, hollow, open air- 55 chambers ($f-f$), or their equivalents, in combination with the cross-piece of the top plate (B) of a cooking stove, substantially in the manner and for the purpose set forth and described; and this I claim, whether 60 the said cross-piece (A) be either movable, or stationary, in the said top-plate.

EDWARD M. MANIGLE.

Witnesses:

BENJ. MORISON,
 JNO. B. KENNY.