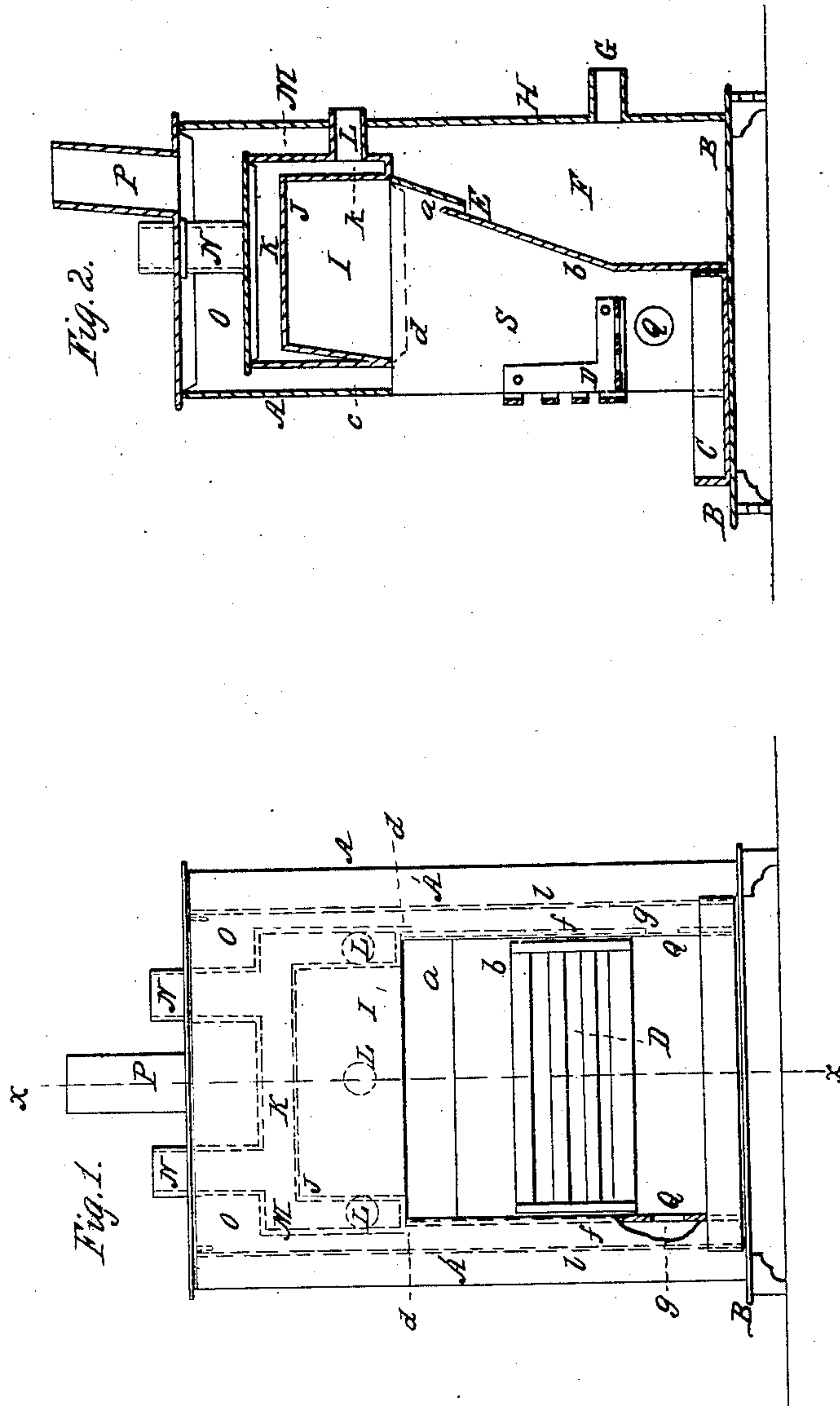


M. BRATT.

Stove.

No. 49,707.

Patented Sept. 5, 1865.



Witnesses:

M. Ahearn for
Geo. F. J. J. J.

Inventor:

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UNITED STATES PATENT OFFICE.

MOSES BRATT, OF MAYSVILLE, KENTUCKY.

IMPROVED STOVE.

Specification forming part of Letters Patent No. 49,707, dated September 5, 1865.

To all whom it may concern:

Be it known that I, MOSES BRATT, of Maysville, in the county of Mason and State of Kentucky, have invented a new and useful Improvement in Stoves; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of a stove constructed after my invention. Fig. 2 is a vertical section thereof, taken on the line *x* of Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention consists in a novel arrangement of air and smoke chambers in an open parlor-stove, whereby air-heating surfaces are made within the walls of the stove, and the smoke and gaseous products of combustion are consumed by supplying currents of air above and below the fire.

A is the stove, which in this example of my invention is made open in front like that type of stoves called "Franklins."

B is the base-plate of the stove, and H its back plate, which may be of metal or a wall of masonry.

D is the fire-grate extending across the width of the fire-chamber S at a suitable height above a movable ash-pan, C, set upon the base-plate.

b is the back of the fire-chamber, and *ff* are its sides, the latter being shown in dotted outline in Fig. 1.

The sides of the stove are designated by the letters *e e*, and are concealed in the front view of the stove by the front plate, A', of the stove, which extends laterally beyond the said sides. The spaces inclosed between the sides *e* of the stove and the sides *f* of the fire-chamber are air-spaces communicating with the air-space F in rear of the fire-back *b* and with the air-space O above the box M.

G is an open air-pipe set in the back wall, H, of the stove in a low position, by which communication is established between the outer air and the air-chamber F.

E is a long narrow opening extending along the whole width of the fire-back, and it is formed by setting the plate *a*, which forms the highest part of the fire-back, a little distance

in the rear and out of contact with the plate *b*, its lower edge being dropped below the upper edge of the said plate *b*. The top plate of the stove is perforated to receive the discharging-flue P and the air-discharge pipes N N. The latter rise from the top plate of a box, M, and pass upward through the flue-passage O. The box M is set within the outer walls of the stove, and is supported upon the sides *f, f*, and *a* of the fire-chamber, a flange, *d*, depending from each side of the box fitting over the edges of the side walls, *f f*, and thereby holding it in position.

J is a box set within the box M in such a position as to leave a space, K, between them on all sides except below, where the space is closed by a suitable horizontal diaphragm. The box J is open below, so that the space I inclosed within it forms a reverberating-chamber to the fire-place below.

L are pipes, three in number, passing from the lower part of the air-space K across the space F and through the back wall, H, to the outer air.

The products of combustion always pass up through the flue *c*, behind the front plate of the stove, and so into the upper flue-space, O, on their way out of the stove.

The air-spaces *g* on each side of the fire-chamber extend upward past the sides of the box M into the flue-space O and backward into the space F, and openings Q are made into said spaces *g* through the fire-walls *f f* at points beneath the bottom of the grate D.

The operation of the stove is as follows: The products of combustion pass upward, and, after reverberating in the chamber I, turn the lower front edges of the boxes J and M into the front flue, *c*, and pass thence into the flue-space O and pipe P. The outer air enters the space F through the pipe G, and, being heated by radiation from the fire-plate *b*, and also by conduction, part of it ascends through the opening E into the fire-chamber, where it becomes mixed with the unconsumed gases and smoke in the reverberating-chamber I, and prepares them for combustion, when they are turned down again toward the fire on their way to the flue *c*. Another part of the air ascends behind the plate *a* and the box M and enters the discharging-flue P, and in so doing creates a partial vacuum in the back part of

the flue O and so assists the draft of the stove. A portion of said air also fills the lateral spaces *g g*, and being heated by contact with and by radiation from the plates *ff* ascends into the flue O, and a part also passes through the openings Q Q beneath the fire-grate and mingles with the burning fuel and supports combustion at the sides of the grate, where often the fire dies out in stoves and grates of ordinary construction for want of air to support the combustion.

I claim as new and desire to secure by Letters Patent—

1. The arrangement, in an open or fire-place stove, of an air-chamber, K, communicating with the outer air and with the air of a room

between the fire-chamber or the reverberating extension thereof and the upper flue-space, when the said air-chamber is also surrounded laterally by flue or hot-air spaces, substantially as above described.

2. The air-chamber F, located behind the fire-back *b*, and connected with the side air-spaces, *g g*, and communicating with the fire-chamber by means of the opening E, and extending upward behind the box M to the flue P, substantially as and for the purpose above described.

MOSES BRATT.

Witnesses:

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