

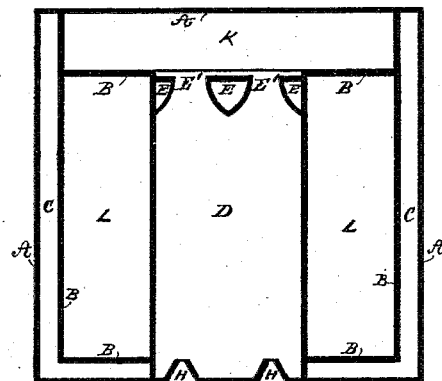
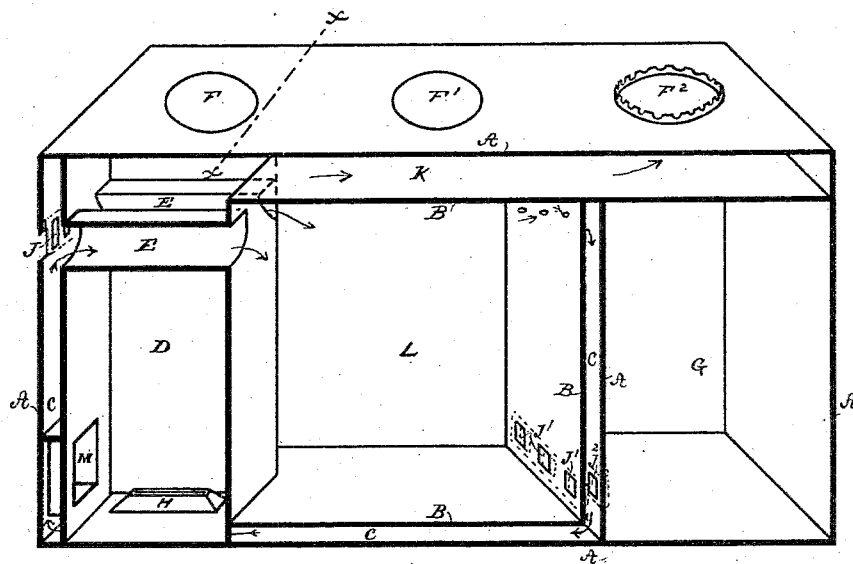
(No Model.)

J. JOHNSTONE.  
OVEN FOR COOKING STOVES.

No. 301,608.

Patented July 8, 1884.

— Fig. 1. —



— Fig. 2. —

WITNESSES

*O. McHadden*  
*Geo. S. Standart*

INVENTOR

*John Johnstone*  
*by H. P. Eberts*  
his ATTORNEY

# UNITED STATES PATENT OFFICE.

JOHN JOHNSTONE, OF DETROIT, MICHIGAN.

## OVEN FOR COOKING-STOVES.

SPECIFICATION forming part of Letters Patent No. 301,608, dated July 8, 1884.

Application filed June 13, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN JOHNSTONE, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Oven for Cooking-Stoves, of which the following is a specification.

The invention is illustrated in the accompanying drawings, in which Figure 1 is a perspective view in longitudinal section, showing my improvements as applied to an oil-stove with the addition of a warming-closet. Fig. 2 is a transverse section through the combustion-chamber at *x x* in Fig. 1.

Like letters indicate like parts in the figures.

In the drawings, A A A represent the outer walls or casing of a stove, which in the present example are extended at the right to form a warming-closet, G. In the top plate, A, three holes, F, F', and F'', are shown for the reception of the usual culinary vessels. The hole F'' is surrounded by a denticulated collar to permit the fumes to escape when liquid fuel is used; but when wood, coke, or coal is used the usual stove-pipe is slipped on to connect it with a chimney.

D is the combustion-chamber, which, in the latter class of stoves, would be fitted with the usual grate, draft-register, &c.; but in the present example the flames enter through the wick-cones H in the bottom.

M represents the casing of a door, through which the wicks are lighted.

B B B are the top, end, and bottom plates, which, with the front and back plates A and the wall of the chamber D, form the oven L. The top plate B is extended to form the top of the hot-closet G, and the space between the top plates A B forms the flue K for the exit of the gaseous products of combustion.

C is a continuous U-shaped flue, formed by the above-described plates, and extends around the front or left end of the combustion-chamber, terminating at the top plate B.

E E E are horizontal flues, opening a communication between the front leg of the flue C and the interior of the oven at the top. These flues E are so shaped and placed, and in such number as to form a chimney-throat for each wick-flame, as well as to absorb its heat and

transmit it to the current of air passing into the oven through it. In the lower right end of the oven is an outlet-register, J', through which the less heated and heavier air passes out of the oven, thence along the bottom of the front leg of the flue C to the horizontal flues E, in which it is reheated on its way into the oven again. Thus it will be seen that a continuous circulation of heated air is kept up through the oven, while the products of combustion pass out directly over it.

To regulate the temperature of the oven (which would otherwise be too high) a check-register, J, is placed in the front end of the outer casing to admit cold air to the flues E in such volume as may be necessary.

The warming-closet G is heated indirectly—that is to say, without a positive circulation—through a register, J'', opening a communication with the lower part of the right leg of the flue C, the difference in density of the air in the upper and lower parts of this closet being relied on to effect a sufficient movement through said register J'' to accomplish the purpose. As the air in the right leg of the flue C might become stagnant and merely serve as a non-conductor, I pierce a few small apertures through the top part of the oven-plate, thereby opening a communication with said flue, when the circulation proceeds in the direction of the arrows, as shown.

I am aware that open air-flues have been used connecting with the space between the fire-box and the oven, as shown in Patent No. 35,141, of 1862. In my construction the cold-air flues extend through the fire-box and into the oven direct. In the patent referred to there is a separate chamber between the fire-box and oven and between the fire-box and the sides of the stove, while in my device the flues E give an extended heating-surface directly within the fire-box, and the heated air from such flues passes directly into the oven.

I deem it important that there is no connection between the oven L and the combustion-chamber. The products of combustion are checked by the form given to the reheating-flues E E, but have a direct passage from the combustion-chamber to the outlet over the warming-chamber.

I attach importance to the flues E passing

directly through the fire-box to give an extended heating-surface therein, and to their connecting the flues C and the open-air passages directly with the interior of the oven.  
5 I attach importance to the oven and its continuous air-passages arranged entirely distinct from the combustion-chamber and its passages, and having its independent means for admitting cold air directly to the reheating-flues.

10 I also attach importance to the arrangement of the warming-chamber G in its relation to the oven, its hot-air passages, and the means for utilizing a portion of the waste heat from the said oven by directing it into said warming-chamber.  
15 chamber.

What I claim as new is—

1. In a direct-draft cook-stove, and in combination with the combustion-chamber thereof and an oven, as L, a continuous hot-air passage distinct from the combustion-chamber,  
20 formed in part by said oven and in part by flues extending through the fire-box to afford an extended heating-surface, and means for admitting cold air to said air-passage, as set forth.  
25 forth.

2. In combination with the combustion-chamber D, oven L, and flues C, the heating-flues E, passing through the fire-chamber D to afford an extended heating-surface within said  
30 fire-chamber, and leading directly to the oven

from the flues C and from the outer air, as herein specified.

3. In combination with the oven L, the combustion-chamber D, and the continuous air-passage formed in part by said oven, the heating-flues E, passing through and formed in the  
35 structure of D to afford an extended heating-surface within said fire-chamber, and connecting the oven and air-flues C, and the cold-air register leading directly to said flues E, as  
40 herein specified.

4. The combination of the combustion-chamber, the warming-chamber G, the hot-air flues C, formed in part by the walls of the oven and said warming-chamber, and the register, sub-  
45 stantially as described.

5. In a stove, substantially as described, the reheating-flues, as E, formed in the structure of the fire-box, extending through said fire-box to give a larger heating-surface therein,  
50 and serving to contract the throat thereof, combined with the oven L, air-inlets J, and flues C, the said reheating-flues directly connecting the oven with the said inlets J, and flues C on the same horizontal plane, as set forth.

JOHN JOHNSTONE.

Witnesses:

ALLAN H. FRAZER,  
L. W. FRAZER.